

Norges miljø- og  
biovitenskapelige  
universitet

**Master's Thesis 2019 60 ECTS**

Faculty of Biosciences

# **Reimagining the University through Innovative Student Roles: The Case of Design for Society**

**İdil Akdöş**

Master of Science in Agroecology



## ACKNOWLEDGEMENTS

This thesis is the product of an amazing experience. It required immense work, steel nerves and a very driven attitude. Yet, we as a group pulled off something that we all will remember and cherish for the rest of our lives. A heartfelt thank you and praise to my teammates Antony Martel and Abel Crawford whose dedicated, inspiring and passionate work made Design for Society come true. Thank you for believing in me and supporting me every step of the way, in so many different ways. I would not be in this place without your collaboration. I hope you enjoy reading this thesis. I enjoyed writing it.

I would like to thank my supervisors Tor Arvid Breland and Edvin Østergaard for their interest and help at various stages of this work. Your encouragement and guidance informed my thesis. I would also like to extend my thanks to all participants of this study, who took the time to share their experiences, insights and visions and engaged in fruitful and inspiring discussions with me.

A big thanks to all those interesting, intelligent and supportive people who contributed in the Design for Society project! Thanks to Elin Børrud for the opportunity to bring this project into fruition and Mike Moulton for the guidance and his genuine support.

My wonderful collective, family, friends and my fellow Agroecology students deserve gratitude. I am very grateful to Charlotte Perrelet for joining me in those crazy days of writing and making my days light up, and Amy Lam whose comments and solidarity lifted up me throughout the entire project, which was so crucial to my well-being.

And thank you to all those creative, brave and imaginative students around the world thinking like us, challenging status quo like us and writing courageously about their experiences. I was greatly inspired when I discovered that I am not alone in this journey thanks to your stories.







## **ABSTRACT**

Student-centred learning is a paradigm shift, which centralises the needs and learning interests of students and explores student's active learning and involvement in the learning process. While this approach positions the student's role as learner, students can act in different roles other than as learners in partnership with faculty. This Action Research studies student-centred learning and student-faculty partnership in the case of Design of Society which was an interdisciplinary student-driven course in Spring 2019 at the Norwegian University of Life Sciences (NMBU), planned and implemented by three students who acted as Course Coordinators. The objective of the research is to determine the supporting and hindering forces that act on interdisciplinary student-driven education in terms of these approaches, and to explore which possibilities might elevate such an educational model, using Design for Society as a case. I collected data primarily through semi-structured interviews and used content analysis to discover themes to inform my objectives. My findings imply that institutional, structural and motivational supporting factors are crucial in establishing interdisciplinary student-driven education, despite the presence of limiting institutional, financial, structural and motivational elements. Other findings imply that Design for Society offered various elements of student-centred learning in its approach and innovated a role that can be considered student-as-partner. While this role problematized the distinction between the student and the teacher, overall it led to increased confidence and agency, as other studies suggest. Other higher education institutions can draw from these findings and assess their educational environment in terms of this study's findings. Possibilities show various pathways to establish an enabling environment and partnership models that might further facilitate student-centred learning environments and nurture student-driven education. Further research is needed to explore ways to deal with these limiting factors and ways of enhancing supporting factors. Additionally, research should take a closer look at different types of student-faculty partnerships and empowered student roles in different contexts.



# Table of Contents

<b>PROLOGUE</b> .....	<b>1</b>
<b>1 INTRODUCTION</b> .....	<b>3</b>
<b>1.1 CONTEXT AND PROBLEM AREA</b> .....	<b>3</b>
<b>1.2 EDUCATIONAL RESPONSE</b> .....	<b>3</b>
<b>1.3 KNOWLEDGE GAP</b> .....	<b>5</b>
<b>1.4 RESEARCH AIMS AND QUESTIONS</b> .....	<b>5</b>
<b>2 MATERIALS AND METHODS</b> .....	<b>6</b>
<b>2.1 ACTION: THE CASE OF 'DESIGN FOR SOCIETY'</b> .....	<b>6</b>
2.1.1 Course Description.....	7
2.1.2 The Special Syllabus Mechanism (Spesialpensum).....	9
<b>2.2 BEYOND THE BOUNDARIES OF THE CASE</b> .....	<b>9</b>
2.2.1 The Agroecology Programme.....	9
2.2.2 Quality of Education at NMBU.....	11
<b>2.3 METHODOLOGY: ACTION RESEARCH</b> .....	<b>12</b>
2.3.1 Research Design: Case Study.....	13
2.3.2 Methods And Data Collection.....	13
2.3.3 Methods For Data Analysis .....	15
<b>3 RESULTS AND DISCUSSION</b> .....	<b>17</b>
<b>3.1 WHAT ARE THE SUPPORTING AND HINDERING FORCES AND POSSIBILITIES FOR INTERDISCIPLINARY STUDENT-DRIVEN EDUCATION?</b> .....	<b>18</b>
3.1.1 Supporting Forces.....	18
3.1.2 Hindering Forces .....	25
3.1.3 Possibilities.....	35
3.1.4 Synthesis .....	47
<b>3.2 LIMITATIONS AND METHODOLOGICAL REFLECTIONS</b> .....	<b>49</b>
<b>4 EPILOGUE</b> .....	<b>51</b>
<b>5 CONCLUSION</b> .....	<b>54</b>
<b>REFERENCES</b> .....	<b>57</b>
<b>APPENDIX</b> .....	<b>62</b>
<b>APPENDIX 1: Special Syllabus Agreement for "Design for Society"</b> .....	<b>62</b>
<b>APPENDIX 2: Chronology</b> .....	<b>66</b>
<b>APPENDIX 3: Written Materials by Design for Society</b> .....	<b>67</b>
<b>APPENDIX 4: Casework Descriptions</b> .....	<b>75</b>
<b>APPENDIX 5: Course Coordinator Role Description (Detailed)</b> .....	<b>84</b>
<b>APPENDIX 6: Syllabus and Schedule of Design for Society</b> .....	<b>85</b>
<b>APPENDIX 7: Weekly Sessions</b> .....	<b>86</b>
<b>APPENDIX 8: Events and Activities of Design for Society</b> .....	<b>87</b>
<b>APPENDIX 9: Design Thinking Framework</b> .....	<b>89</b>
<b>APPENDIX 10: Blog Post Guideline</b> .....	<b>90</b>



## PROLOGUE

I was overwhelmed by being alone in my missions and needed a community. I thought I had to unlearn and re-learn to build my way in as 'agent of change'. I was partly working this, on a small scale, reaching out to a smaller audience. I was striving to make a difference in people's lives, inoculating them with the desire to find about how they can contribute to making the world a more liveable place, for us and for the generations to come. (Idil Akdos, Learner document, December 2017).

At the time of writing this thesis, I was a female international student into the third year in the Agroecology masters degree program at NMBU with a background of molecular biology and genetics. Before coming to Norway, I resigned from a job in Istanbul as an urban rooftop farmer and a permaculture designer, which was one of the most fruitful work experiences in my life. I regard food as an important axis for social change having the power to bring together, and so I consider myself an activist scholar in the field of food. My identity has been informed by years of engagement with food, as an advocate, grower, student, researcher, educator, mentor and community builder. But in my own practice back then I simply lacked the tools to engage people and build a community in democratic, participatory as well as politically and morally charged ways. Besides, I was not knowledgeable or skilful enough to articulate my desire to do so. My exigency to pursue my graduate studies stemmed from an awareness of these shortcomings; therefore first I needed to fill in the knowledge gaps that I was identified. That's how I found myself in the Agroecology programme at NMBU.

My journey in education started when I first started tutoring a little more than 20 years ago when I was 16. I loved teaching. Afterward I started practicing permaculture, I combined my passion for sharing and exchanging knowledge with farming and food. It became part of my livelihood. Studying agroecology at NMBU was an ideal decision for me, because I could formally pursue both of my true passions, food systems and pedagogy. In the PAE302 classroom, I was surrounded by peers from a diverse demographic makeup, varying in educational backgrounds, experience, culture, interests and aspirations. In mini teams, we dealt with the dynamic nature and social dimension of agroecosystems. Doing so required the release of old habits and formal learning, which in return allowed me to stay current, out of the obsolete and adapt to contextual environments. I was engaged in deep dialogues with like-minded peers who were also in pursuit of similar aims in life. Thanks to this education, who I was yesterday, was no longer me today. I was feeling equipped with the skills and tools that I had lacked before. However, in the semesters that followed, understood that this pedagogical approach is limited to the students of the Agroecology program.

Freire (1993) talks about the fallacy of the 'banking education' and strikingly similarly, courses available to me in the second semester all had a theoretical approach away from the social realities and divorced of its context. However, integral to my ambition was to make the best of my education opportunity, and as advocated in my program, I was compelled to apply my newly found knowledge and skills in new contexts. I volunteered in the task of weaving together a new course and facilitating a Special Syllabus course called 'Carbon Farming and Holistic Management' in the Spring semester of 2018 that hosted 7 other Agroecology students.

In the following semester, I was embedded in a research environment for Alternative Food Networks and Agroecology. Together with my exchange semester at the University of Copenhagen and courses on ethics, conflict management as well as getting involved in opportunities to practice my skills as a facilitator for a transition process of a social community bolstered my belief in what I can do and how to do it. I continuously flicker being theory and practice, which means “to continually switch back and forth between the perspective of the part and the perspective of the whole” (Francis et al., 2014, pp. 435–436). I took all of these experiences and placed them in my educational project. I find this the best way to internalize the information I acquire and customize it in my own context in the light of my objectives. Today, as a mentor I engage with complex food systems and sustainability issues in creative ways alongside teenagers, using gardening and beekeeping as tools to allow nature and its processes to guide and teach us what to understand more through experiential learning.

I come from Turkey, which is a non-European Union state, with a very different mindset about citizens’ role in democracy and processes of change. My agency is impeded by the lack of opportunities, resources and freedom at my home country but is reinforced by the strong solidarity and a revolutionary need for disruption in an environmentally, culturally, socially and politically contested environment. Therefore, when I arrived in Norway I was struck by the abundance of opportunities and resources, but also surprised by how little nonconformity there was as I could witness in my own environment. This leads to the formation of a grassroots educational initiative and a journey of unlocking our potential as students, which persevered through challenges during the Autumn 2018 and Spring 2019 semesters at NMBU. What follows is something that is endemic to my spirit as a change agent and an accounting of my educational praxis.

# 1 INTRODUCTION

## 1.1 CONTEXT AND PROBLEM AREA

The future of higher education is in question as universities struggle to remain relevant to the present and future needs of society (Arvanitakis & Hornsby, 2016a; Barnett & Bengtson, 2018). The context in which learning should take place is constantly changing, and rapidly, because today's "wicked problems" (i.e. threats to biodiversity, loss of indigenous knowledge systems, soil degradation, and corporate concentration of the food sector) are messier and more complex than ever before (Armson, 2011). Wicked problems are characterized by being ill defined and open-ended, which cannot be solved with structured and prescribed solution strategies, because they are located at the juncture of social, economic, political, cultural and environmental crises (Armson, 2011). They require learners to work closely with unlikely partners, across disciplines (Barnett & Bengtson, 2018; Herranen, Vesterinen, & Aksela, 2018; Holley, 2017) and across the gates of the university (Francis et al., 2014; Newig et al., 2013). Learners must be creative and imaginative while embracing inquiring attitudes and skills with greater autonomy, responsibility and urgency (Cook-Sather, 2010; Wright, 2011). Therefore, the learning challenge is to develop and nurture values, mind-sets and competencies to become informed citizens that can identify and address the sustainability challenges (Cortese, 2003; Damşa & Lange, 2019; Giroux, 2013; Sterling, 2016), beyond the confines of formal curriculum (Curaj, 2015; Shephard et al., 2017) and beyond customary roles and partnerships (Hald, 2011; Herranen et al., 2018; Stoddard, Rieser, Andersson, & Friman, 2012)

In traditional education though, learning takes place within conventional and discipline-specific knowledge systems, and through hierarchical relations. This reductionist approach does not foster competencies to work with complexity (Holley, 2017) or sustainability challenges (Cortese, 2003). Entailed in this paradigm is the conception of students as empty and passive receptacles to be filled in with knowledge by their teacher, conceptualised as the 'banking model of education' by Freire (1993) and consequently subordinate to the teacher, who is the expert (Bovill, Cook-Sather, & Felten, 2011). As such, cultural frames and norms in higher education shape expectations about students' roles and behaviours (Klemenčič, 2017), which eventually constrain their capability to exercise agency and influence their education (Burke, 2013; Cook-Sather, 2010; Green, 2019; Hald, 2011; Matthews, Dwyer, Hine, & Turner, 2018). While these power dynamics are rarely negotiated, Stoddard (2012, p. 34) proposes: "if sustainability is truly about future generations, then young people—students—should be given the opportunity to propose, develop, and implement prospective solutions for sustainable development".

## 1.2 EDUCATIONAL RESPONSE

The last decade has seen a paradigm shift from conventional, teacher-centred direct instruction towards an emphasis on student-centrality, a focus on increased student engagement and agency (Klemenčič, 2017). In 2009, the Student-Centred Learning (SCL) concept was established as an explicit policy priority in the Leuven Communiqué: "SCL requires empowering individual learners, new approaches to teaching and learning, effective support and guidance structures and a curriculum focused more clearly on the learner" (Leuven Communiqué, 2009, p. 3). In this

approach, teaching is tailored to students' learning interests and the teacher facilitates the learning process (O'Neill & McMahon, 2005). Meanwhile the student is active and engages in a shared responsibility (Damşa & Lange, 2019). This is delivered through a "choice-based pedagogy, where teachers offer choices and students can have influence on them" (Vesterinen, Gollifer, & Macdonald, 2017, p. 10). This approach is considered as a way of "addressing the challenges of sustainability education, such as the uncertainty and complexity of the sustainability issues as well as the need for interdisciplinarity in solving them" (Herranen et al., 2018, p. 1).

As an important regulatory instrument of European Higher Education Area (EHEA), European Standards and Guidelines (ESG) for Quality Assurance has recognized student-centred learning as a standard to ensure and enhance quality of learning and teaching in higher education (Elken, 2016; Klemenčič, 2017; Stensaker, Frølich, & Aamodt, 2018). Along the same lines, student engagement is considered as a powerful driver of quality assurance (Owen & Dunne, 2013). Due to its strong influence on institutional policies and practices, SCL has become widely accepted amongst European higher institutions (Klemenčič, 2017). Consequently, the Nordic Institute for Studies in Innovation, Research and Education (NIFU) is taking SCL into its focus and producing research work on this theory and its application in the Nordic context.

While SCL takes the student's role as learner, students can act different roles other than as learners (Vesterinen et al., 2017). They can become co-researchers, consultants, co-creators of curricula, content and modes of assignment, instructors and coordinators at the course or program level (Bovill, 2019; Vesterinen et al., 2017). Sustainability education, due to its emphasis on interdisciplinarity, engagement, autonomous learning and inquiring skills bears opportunities to support different forms of collaboration and partnerships between students and faculty (Vesterinen et al., 2017). Indeed as a particular form of student engagement, student-faculty partnership is an emerging field of study and practice (Matthews et al., 2018). Student-faculty partnership can be described as 'a collaborative, reciprocal process through which all participants have the opportunity to contribute equally, although not necessarily in the same ways, to curricular or pedagogical conceptualization, decision making, implementation, investigation, or analysis (Cook-Sather, 2014, p. 6-7 as cited in (Bovill, 2019)). This partnership nurtures student-as-partner, in which the students can take more control, responsibility and legitimacy for the design and delivery of their own education. This challenges conventional assumptions around the roles and relationships between students and teachers while providing numerous benefits to students, faculty and institutions (Matthews et al., 2018)

Meanwhile, higher education institutions respond to this shift by exploring strategies that focus on "a more student-centred approach to learning and teaching, embracing flexible learning paths and recognising competences gained outside formal curricula" (ESG, 2015, p. 6). The Norwegian University of Life Sciences (NMBU) (Norges Miljø- og Biovitenskapelige Universitet) 2019-2023 strategy addresses to this documented need. NMBU's mission statement instils the university with a special duty, to "help to secure the basis of life for future generations" and train students to be "equipped with a mindset in support of sustainability". This entails fostering "the knowledge, competencies and skills required to meet the major global societal challenges". Such graduate attributes form the focus of student-centred learning and student-faculty partnership models (Herranen et al., 2018; Shephard et al., 2017; Vesterinen et al., 2017).



### **1.3 KNOWLEDGE GAP**

To achieve these ideals, there is a need to understand and explore the way students are “positioned in educational institutions, dialogues, and reform” (Cook-Sather, 2010, p. 555), Research notes that often students lack agency within university educational structures and processes (Giroux, 2013). There is a documented need for generating new types of student-faculty partnerships (Cook-Sather, 2014), learning environments (Damşa & Lange, 2019), design and delivery of education (Shephard et al., 2017), and ways of organizing education (Klemenčič, 2017), with an emphasis on the centrality of students’ needs, interests and agency.

However, there is limited knowledge about how these new forms of partnership and centrality can be managed in different contexts. One challenge stated in NIFU’s report addresses “a need for more research on collaborative work and communication in higher education (e.g. in teacher teams, between teachers and students and across course and programme levels)” (Nerland and Prøitz 2018).

### **1.4 RESEARCH AIMS AND QUESTIONS**

This study aims to determine the supporting forces and hindering forces for configuring interdisciplinary student-driven education in terms of student-centred learning and student-faculty partnership. Approaching these conditions, this study also explores the possibilities for interdisciplinary student-driven education. Design for Society, an interdisciplinary student-driven course is used as a case to achieve these aims. The study also wishes to focus on empowered student roles, looking at the role Course Coordinator. Doing so, I draw on notions of critical pedagogy from Freire (1993) and Giroux (2010, 2013) as well as student-centred learning from Damşa and Lange (2019) and Klemenčič (2017), and student-faculty partnership from Cook-Sather (2010, 2014).

At the culmination of this thesis, I seek to have communicated information about the student-driven initiative ‘Design for Society’ and its role in creating a student centered learning environment and attempt at playing a role of student-as-partner at NMBU, with the overarching goal of inspiring students, educators and non-academic actors to understand the rich possibilities of creating and designing education together in open, participatory and creative ways.

These goals are approached in one main question:

- 1) What are the hindering and supporting forces and possibilities for interdisciplinary student-driven education?

In order to pursue these research questions, I draw on empirical findings and materials gleaned from the course “Design for Society”. The objectives and question is approached in the following parts. Chapter 2 comprises of three sections. The first section offers a description of the course Design for Society including its foundational principles, structure and pedagogical approach, setting the boundaries of the case. This is followed by a description of the context it is embedded

in including the PAE302 Agroecology course and NMBU's understanding of quality of education. Later, the third section 5 explicates my methodology by shedding light onto the research design, including the strategy of research, and the methods for data collection and data analysis.

In Chapter 3, I am presenting and discussing my findings in an attempt to answer my research questions and fulfil my objectives. I end this chapter with a synthesis of my findings and a discussion of the limitations of the study and some methodological reflections. Later, in Chapter 4, I touch upon my value addition to my programme and talk about my personal motivations in the form of an Epilogue. Finally, Chapter 5 concludes my findings and review the lessons learned from Design for Society.

## **2 MATERIALS AND METHODS**

The Design for Society course at NMBU offers both a context and case for this thesis. The first section establishes a description of the action and the system boundaries of the course. Later, I move on to describe its embedded context at NMBU in the second section. The third section introduces the action research methodology as well as the relevant methods for conducting and analysing my inquiry.

### **2.1 ACTION: THE CASE OF 'DESIGN FOR SOCIETY'**

As with many new initiatives, the project Design for Society project started as little more than an emerging idea: to create an initial seed that would eventually lead NMBU to make "sustainability an integral part of [its] operations, planning, facility design, purchasing, and investments" (Cortese, 2003, p. 5). Design for Society also aimed at shifting the university's approach to student activity, which would orient their work within interdisciplinary teams. This meant that students from any discipline, level or background could work collaboratively to address community challenges in a dynamic setting. Ultimately, Design for Society's vision culminated in the university's transformation from a siloed bureaucratic institution toward a collaborative learning environment where work across disciplinary boundaries was seamless and integral to tackling societal issues. We thought this environment would endow students with the capacities for making moral judgments and taking informed action in order to deal with the complexity and messiness of reality.

The initial idea phase evolved into the serious conceptualisation of a project in August/September 2018. When we came to an understanding that the university's response would not be prompt, we decided to run the course ourselves. . To initiate these aspirations, we started thinking about designing a pilot course for delivery in Spring 2019 to serve as a prototype. We developed a curriculum to drive learning in sustainability beyond the boundaries of academic disciplines while continuing to resonate with the values, mission and vision of NMBU (please see section 3.2.2.). We called our initiative and the course 'Design for Society'. The rationale for this course was in the course proposal document (for more details please see Appendix 3):

Students have tremendous potential to be part of renewing society, facilitating the shift to collaborative organisational eco-systems. In many cases theory needs to be bridged with practice, too often the focus being on practice or theory in isolation. Putting the learner in the “driver's seat of profound societal change,” and moving the place of learning beyond the lecture hall to the real world, would be a great step toward bridging the gap between theory and practice. Bringing together students from different disciplines would also enrich their ability to see beyond their own field, to see the larger societal system, and their role in it. Issues suddenly become interconnected and collaboration across disciplines becomes easier (Design for Society Course Proposal, October, 2018).

As described above, the mission of the course was to nurture motivated and talented learners who are committed to realising their visions and values to make a positive difference in the world, all while developing their capabilities, attitudes and knowledge. The course also aimed to initiate a dialogue across faculties, student bodies and beyond the university. It was important to connect with non-academic actors for collaboration and trigger interdisciplinary or transdisciplinary efforts that were beyond a more conventional multidisciplinary paradigm. The excerpt below is illustrative of the purpose of the course, as well as its pedagogical design (for more details please see Appendix 3):

Key stakeholders from the community and/or government would be matched with interdisciplinary student ‘design’ teams who would solve real problems under the guidance of key academics and community stakeholders. An interactive action-research and learning course such as this proposal could be a key component in bridging the disciplinary silos at university and enrich students’ ability to see beyond their own field. It would also address the gap between theory and practice, by moving the place of learning beyond the lecture hall to the real world, and putting students in the ‘driver's seat’ of societal change (Course Discussion Drief, October 2018).

### **2.1.1 Course Description**

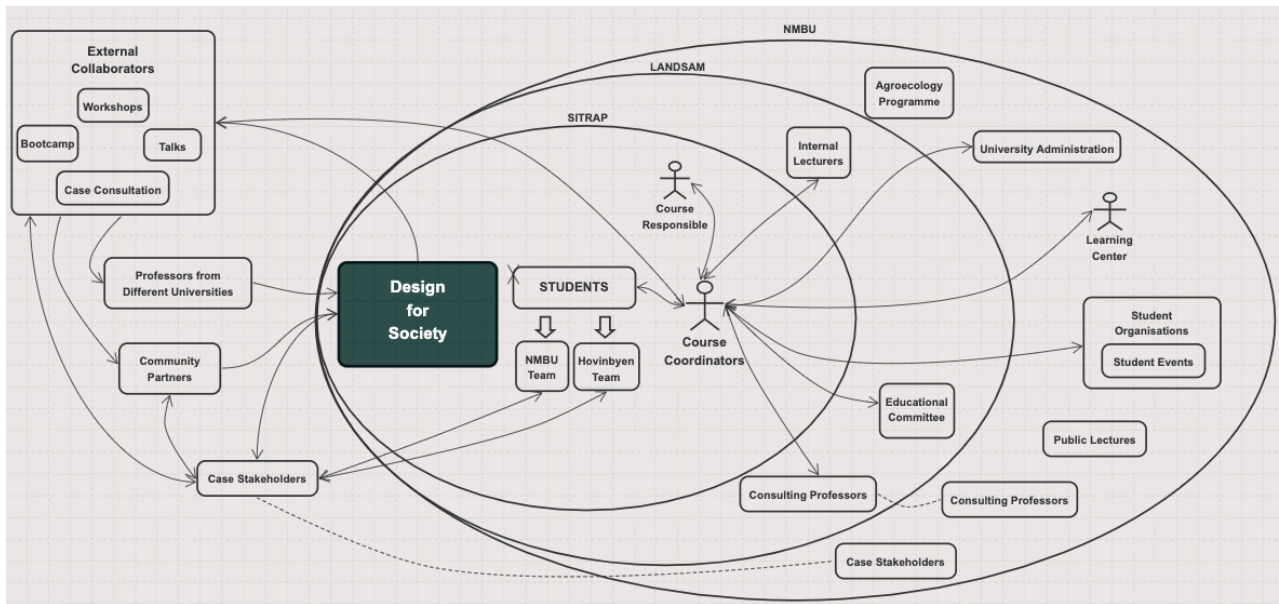
Design for Society was a pilot course that ran during the spring semester in 2019 at NMBU, between 01.February and 28.May 2019 (please see Appendix 2 for the chronology). What distinguished this course from others was its initiation, coordination and execution by students. The course accommodated 7 participants, of whom 1 was a recent graduate. All students who took the course for credit reached completion with a passing grade. Consequently, Design for Society generated 70 credits for the faculty of Landscape and Society (LANDSAM). Tony Martel (MSc International Relations), Abel Crawford (MSc Agroecology) and myself, Idil Akdos (MSc Agroecology) were the developers and coordinators of Design for Society, referred to as *course coordinators* in this study. Apart from the three of us, 5 students, referred to as *student participants*, formed two teams working on one case. The participants were from different disciplines and faculties, and in different stages of their education. Design for Society was funded through Prof. Elin Børrud’s research project SITRAP (Center for Integrated and Transdisciplinary Teaching in Urban Planning), who was also the Course Responsible for this pilot.

As Course Coordinators, we were not aware of student-centred learning before the implementation of Design for Society. We took inspiration for our pedagogical model from the approach adopted by the Agroecology Programme at NMBU (please see Section 2.2.1.). We

further developed this approach to address the gaps we had identified in the program and the university, such as mentorship, cross-faculty dialogue, and freedom in goal setting. The principles of the course rested on three major tenets that can be described as, 1) Just-in-time Learning, 2) Transdisciplinary Education and 3) Facilitating Student Activism (Design for Society, ACRE2019 Presentation, July 2019).

Design for Society implemented its major tenets in three different dimensions through student cases, community partnerships, and external events related to the course (Design for Society, ACRE2019 Presentation, July 2019). First of all, the structure of the course was woven around a case, where students framed their problem and solution through inquiry-based learning (please see Appendix 4 for Casework Descriptions). Conceptualizing the broad and complex nature of the student cases required frameworks that could facilitate a coherent learning process, which was accomplished through design thinking and systems thinking. One of the cases was developed by the Course Coordinators in collaboration with Pådriv, a business network from Oslo, while the other was developed by us as Course Coordinators. The student participants chose the cases themselves, prior to the start of the course. Secondly, the cases were supported by lectures, workshops and seminars on tools, methods, frameworks and theory. There were also discussion and reflection sessions following each session of the course. Each lecture and workshop was facilitated by academic actors from different departments of NMBU as well as different universities in Oslo, and non-academic actors from private sector, in addition to the Course Coordinators (please see Appendix 7 for a detailed table). Thirdly, Design for Society hosted events, organised seminars and other activities to reach out to and involve as many students as possible, not being exclusive to course participants (please see Appendix 8 for a detailed table of events and activities).

The duties and responsibilities that emerged while leading the design of learning and crafting a student-centred learning environment created an ample amount of workload. These conditions obliged us as Course Coordinators to differentiate our position from a participant of the course toward a designer/facilitator/coordinator role. Indeed we called our role 'Course Coordinator' (please see Appendix 5 for more details). Below is an organisational systems map detailing the interrelations of most actors involved in the making and execution of Design for Society.



**Figure 1: Organisational systems map of Design for Society**

### 2.1.2 The Special Syllabus Mechanism (Spesialpensum)

Design for Society was realized in practice through NMBU's special syllabus mechanism (please see Appendix 1 for the special syllabus agreement). Where NMBU's course offerings are limited, the special syllabus (Spesialpensum in Norwegian) is a mechanism provided by the university to self-program their education. This tool makes it possible to receive credit for completing a study on a self-selected topic. Here, the student takes the initiative and credit is awarded based on the size of the study, which can be done under any faculty and any study-level.

Before a special syllabus course can take place, there must be steps taken to make the course official. A 'Learning Agreement' must be signed and approved by a Course Responsible, who is usually a professor with a relevant subject or specialisation to the course content, to give legitimacy and receive credits. The Course Responsible oversees the course's activities and administers the assessment. The Learning Agreement is a document that is openly accessible through NMBU's website, and the university's regulations require that it must be submitted with a course description. The course description details the need for this special syllabus course, its size (how many credits), the subjects that to be covered, how those subjects are allocated every week, the readings and/or other media to support theory, the deliverables, the student's responsibilities as well as the learning outcomes of the study. This course description and learning agreement are to be prepared by the student.

## 2.2 BEYOND THE BOUNDARIES OF THE CASE

### 2.2.1 The Agroecology Programme

Design for Society did not arise as a completely original idea, but rather drew inspiration from existing courses at NMBU and elsewhere. At NMBU, the courses PAE302: Action Learning in Food and Farming Systems, the Carbon Farming Special Syllabus were foundational as examples, both in concept and as experiences for the Course Coordinators. Importantly, the pedagogical design

of the course PAE302 influenced the pedagogical approach of Design for Society, which is taught by the Agroecology programme. One of my peers and myself directly experienced this course as students. Additionally, when building Design for Society as an idea, courses from other universities such as Design for Government at Aalto University and the Transition Design Seminar at Carnegie Mellon University were inspirational for envisioning what could be possible in NMBU's context.

Given the profound influence of the Agroecology Programme's learning approach on Design for Society, I wish to explain its foundational principles. NMBU's Agroecology Programme is a 2-year Master's degree programme, which starts with PAE302: Action Learning in Food and Farming System as an intensive module in the autumn semester, consisting of 30 credits. The course grounds itself in action education and employs a transdisciplinary approach to improve food and farming systems. The aim is to design a complete learning environment focused on experience, reflection and systems thinking. The programme's goal is to train an agroecologist who is a well-prepared, knowledgeable and confident facilitator equipped with skills and competencies to be a change agent. Students are to leave the program ready to deal with complex sustainability challenges and drive transition processes toward sustainable and just futures (Francis et al., 2014; Lieblein, Østergaard, & Francis, 2004). This goal is sought through focusing on a holistic understanding of agroecosystems through multiple perspectives by conducting real casework with real stakeholders. The casework is supported by lectures, seminars, discussions and reflections, and group-work, which inform the student through theory, engagement in praxis, social learning and autonomous learning.

The course seeks to link theory and practice through the Action Learning methodology. Learning takes place by diving into two real cases where the phenomena guide students to study the relevant and necessary theory to untangle the complexity they are dealing with and improve the situation (Francis et al., 2014; Lieblein et al., 2004). Being exposed to open-ended, complex problems helps organise the learning process as a collaborative activity aimed at solving complex and ill-structured problems (Francis et al., 2014). As such, the programme explores the idea of 'just-in-time' learning, which is an approach that originates with the professors at NMBU's Agroecology Programme. This style of self-directed learning requires inquiring actions and knowledge generation as the basis for potential solutions (Francis et al., 2014). In this way, students learn content that is interesting, relevant and necessary to them.

One way to view the Agroecology Programme's curriculum is as a design that makes learning reflective, active, collaborative, and most importantly transformative (Lieblein et al., 2004). The goal, in this sense, is to produce "autonomous learners" who will promote change with the specially designed toolset that is given throughout the intensive first semester (Lieblein, Breland, Francis, & Østergaard, 2012). The learning outcomes of the course, PAE 302, are aligned with these competencies. I present some of them here that were relevant to me while developing the course Design for Society:

- Experience with methods for systems analysis and improvement
- Assessment of sustainability within a methodology of participatory action research
- The ability to handle complexity and change
- The ability to link theory to real-life situations

- The ability to communicate with and facilitate others
- The ability to life-long and autonomous learning
- Experience in dealing with attitudes as part of the agroecosystem and the learning community (PAE302 Agroecology, n.d.).

Another influencing factor in building the curriculum was the ambition of PAE302 to illustrate a framework that can be applied when intervening in a system to improve it (Lieblein et al., 2004). This framework provides perspectives that can be useful when designing improvements within complex real-world challenges other than food and farming systems. It can roughly be outlined as 1) describing the what is there and what it means (structure and functioning of a system), 2) identifying why it matters (emergent themes), 3) exploring what could be (the desired future), and 4) how to get there (action plans) (Migliorini & Lieblein, 2016).

## 2.2.2 Quality of Education at NMBU

Design for Society was as much an inspiration for an alternative classroom model taken from the previously mentioned examples, as it was an attempt to improve the quality of education at NMBU. Therefore, NMBU's own documentation of its educational quality is important to this study. NMBU disseminates its priorities and measures in quality enhancement and documents its quality of education through its official website. There are several annual reports: relevant to this study are Quality Report (*Kvalitetsmeldingen*) and Annual Report for Researcher Education (*Årsrapport for forskerutdanningent*) that are submitted to the University Board in the field of study quality (Studieavdelingen, 2019).

The two most important pieces of evidence from NMBU's website were its Quality Assurance and Study Quality Area webpages. On NMBU's page for Quality Assurance in Education, one can see a brief explanation of how they undertake these efforts and which processes are utilised. Under Study Quality Areas, there are two sections that I found of interest, namely, 'Learning' which looks at quality in learning and 'Relevance' to the society and the work life, a criteria as mandated by ESG (2015) (Studieavdelingen, 2019). Under the 'relevance' section, one can read NMBU's ambition to educate students in interdisciplinary contexts and skills and allow collaboration with society and work life, which are relevant for contributing in societal challenges (Studieavdelingen, 2019). Having established NMBU's interpretation of quality in education, the website points out to NMBU's strategy and learning philosophy as manifestations of this understanding.

NMBU announced their new strategy 2019-2023 with a commitment toward 'joint efforts for a sustainable future' targeting the Sustainability Development Goals (SDGs) (Sparre, 2019). The strategy document includes the vision, social mission and values statement of NMBU, as well as 4 priority areas that will be the center of commitment within this period:

- Interdisciplinarity
- The Digital Society
- Lifelong Learning
- A Unified University

Similarly, in its learning philosophy, NMBU promises to facilitate a learning experience in which students acquire the necessary skills to tackle global challenges (Dyb, 2016). The learning

philosophy emphasizes inclusivity, participation, dialogue and feedback as significant factors in the learning process.

## **2.3 METHODOLOGY: ACTION RESEARCH**

As a student who has designed, developed and run a course at her university, my intention was to make a difference at my institution. Consequently, I wanted link this action to research that would generate useful knowledge since this is ultimately the purpose of research. I wanted to improve not only the action, in this case student learning, but also the environment that can facilitate the action itself. Therefore, I designed this study under the Action Research methodology to engage in a collective, transformative and self-reflective strategy of inquiry (Cohen, Manion, & Morrison, 2007). I wanted to determine the forces that acted on Design for Society and improve the course by scrutinising participants' and my own experiences and insights to challenge the status quo in education. Additionally, being divorced from a single discipline made Action Research an appropriate tool (Levin, 2012), enabling me to continue my research in line with the principles of Design for Society.

The objectives and questions for this study stemmed from a commitment to achieve the collective goals of the Course Coordinators. The ultimate goal for this course was transforming the university, as was stated in Design for Society's discussion briefs and proposals. Examining the micro-level experiences and relations that were formed in the action part of the research, Action Research strategy allowed me to find out the hindering and supporting forces and windows of opportunities. It also allowed me to analyse an empowered student role as designers of their education, which was important when ideating and attempting to continue Design for Society in another iteration. Researching these elements may inform how Action can be implemented in the following round of Design for Society, or by other student initiatives, in a way to positively impact student learning and constructively develop capacities. Therefore, Action Research, which is comprised of informed action followed by argued reasoning rather than pure activism with no research ambitions (McNiff, 2014; Levin, 2012) was the most meaningful strategy for this study.

Following Levin's (2012) argument, I used an Action Research strategy not as a tool for problem solving, but rather for a quest for knowledge through a collaborative and reflective process of learning. It is a way to engage and inspire students, professors and non-academic actors to reflect together on how we can strengthen and promote new possibilities for designing education as well as create new roles for actors in their own contexts, both at NMBU and elsewhere. This co-generative strategy allowed the research focus to appear through the deeply emphatic and political involvement of myself in the phenomenon because I was both the researcher and the 'researched'. Dewey (1938/1991) recounts this involvement, or relevance as 'an undetermined real life situation that is made determined (understood or explained) through (active manipulation) of the research activity' (as cited in (Levin, 2012)). My relevance to the object of research helped ground it in a deep empirical understanding of the situation in the field. Similarly, my relevance also helped me understand the student perspective of their role as participants, and question how the student roles departed from my own experiences in addition to the other Course Coordinators of Design for Society. However, the close relevance of the



researcher to the research documented in this study invites debates within the sphere of social sciences, which conventionally sees relevance and rigor as opposing forces (McNiff, 2014). In order to balance rigor and relevance, I was engaged in critical and detached reasoning and reflexive processes.

### **2.3.1 Research Design: Case Study**

In order to understand the forces and possibilities that might empower or inhibit interdisciplinary student-driven initiatives, I have chosen a case study design to examine the course Design for Society in depth, setting the context of the research at NMBU, since the essence of the case cannot be captured without its context (Yin, 2018).

The boundaries of the case include the people who participated, coordinated, lectured and promoted the course Design for Society as well as the activities held by these actors under the name, Design for Society, in addition to the mission and principles behind these activities. Pennycook (2004, p. 479) explains that “the classroom is a microcosm of the larger social and cultural world, reflecting, reproducing and changing the world” (as cited in Bohórquez, 2012). This gave me an understanding of where to draw the boundaries and how to explore the relational issues between the case and its context. Having established these boundaries, I investigated the complex set of relations between the case phenomenon and the relevant contextual conditions. Using a case study design was most apt to conceptualise my research aims and questions while accommodating the complexities that arise from the study of a group in line with the thoughts of Yin (2018).

Thanks to this qualitative approach, participants were able to articulate their motivations for getting involved with the course Design for Society in a culturally and socially sensitive manner. They were open to share their perceptions and impressions about the role of the Course Coordinators while also being able to critique or offer suggestions for a better learning environment at NMBU. This approach has allowed me to obtain an in-depth understanding of the how different supporting and hindering forces took place to provide a learning environment for Design for Society through such detailed accounts from participants.

### **2.3.2 Methods And Data Collection**

Action research has a broad description about what constitutes data (Cohen et al., 2007). Throughout the project, I gathered data that include archival records and documents, participant observations, reflections and semi-structured interviews. The diversity of source material is important since the case study is strengthened by the breadth of its sources (Baxter & Jack, 2008; Yin, 2018). This potentially enhanced the validity of the data collection through its triangulation while also permitting this study to develop a deep and holistic insight of the studied platform and its relevant contexts (Patton, 2014). Table 1 below categorizes the nature of data collected and how it supports the research.

**Table 1: A summary of data collection and their sources**

<b>Data source</b>	<b>Form</b>	<b>Description</b>
Secondary data	Literature, books, NMBU website, NMBU reports, governmental agency reports	Establishing knowledge base
Archival records and documents	Course proposal, discussion brief, course description, syllabus	Course-related records and documents (please see Appendix 3 for more details)
	Meeting minutes and notes	Internal records of Course Coordinators meetings every 2-3 weeks
	Facebook posts, course posters, articles, abstracts, email correspondence and information meetings	Communication records and documents (please see Appendix 3 for more details)
	Info meetings, public events, ACRE19 conference, and other events DfS participated in	Empirical findings produced during meetings to disseminate DfS's mission and programme
Participant observation	Participant observation	Notes taken during action and research
Semi-structured interviews	Audio	15 semi-structured interviews and 3 informal conversations carried out with informants
Reflections	Reflection log and learner document from PAE302	A reflection of my lived experience

The aspects of reflection and action endemic to this study required that I collected data from the realm of theory and documents from the university context. In order to establish a knowledge base for the context of higher education at NMBU, and Norway in general, I surveyed relevant theory about critical pedagogy and student-centered learning. I also reviewed NMBU's official website and reports, such as the university strategy, academic regulations, learning philosophy, and white papers from Norwegian educational agencies. The combination of theoretical approaches to education with NMBU's official documents established a philosophical and practical foundation for my analysis that comes later in this study.

Also important to this study were the documents from the Design for Society course. These documents and archival records consist of course related documents, records and communication data. Further, data from a participant observation approach was derived from engagement in the action itself throughout the entire period of preparing, running the course, and interviews, which complement the other types of data in this study (Yin, 2018). I made first-hand observations of situations, activities and social interactions between people, mostly within the university context (Bernard, 2006). My critical reflections were based on my lived experience (Richardson, 2000), using excerpts from my reflection log for Design for Society and a learner document, which is a reflection log written by myself in December 2017 for the course PAE302 in the Agroecology programme.

Finally, I collected the bulk of my data from interviews to investigate the personal perceptions and experiences of participants. I conducted 13 face-to-face and two Skype semi-structured interviews and three informal interviews. The content of the interviews varied according to the interviewee's relevance to the Design for Society project. Using an exploratory approach allowed the interviewees to focus on the context of their involvement and carry the conversation in the direction of their passion (Bernard, 2006). Overall, I maintained the quality for the data obtained by asking unbiased, open-ended questions that allowed for the complexities of the participants personal experiences and perceptions (Patton, 2014). I framed the questions around the nature of their involvement and motivation, impressions of the course, perception of roles, barriers, supporting elements and opportunities for student-driven courses, thoughts on a second iteration and recommendations, views about the role of the student and thoughts the role of the university for addressing the needs of society.

I utilised a purposeful sampling strategy in order to sample the participants strategically in order to stay relevant to my research questions (Bernard, 2006). The participants were chosen amongst those who played different roles in the imagining, ideation, promotion, advising, execution and coordination of the Design for Society course and held various positions in the university, educational agencies and non-academic spheres, which offered a comprehensive outlook for the object of this study. I included all students who took the class, except one who was unresponsive to the interview request. Finally, I interviewed 6 students, 4 professors, 3 community partners, and 2 administration staff who were available for an interview.

In addition to the purposeful sampling approach, I used snowball sampling, which hinted at where to look for more data throughout the data collection activity (Bernard, 2006). This added one interview with two researchers at NOKUT, 1 student at NMBU who works as an Øvingslærer, and 1 Course Coordinator from another educational project onto my data collection.

Finally, this qualitative and exploratory study was undertaken in accordance with ethical standards following the approval of the Norwegian Centre for Research Data. Permission to record interviews has been taken from the participants. Assuring confidentiality, anonymity and that they can withdraw at any time was another essential element of ethical considerations.

### **2.3.3 Methods For Data Analysis**

The process of data analysis usually deals with reducing the volume of data collected into fewer content categories to make valid inferences (Bengtsson, 2016; Graneheim & Lundman, 2004) The method of content analysis aims to identify and organise these content categories and elicit meaning from it by staying true to the data (Bengtsson 2016).

Accordingly, I used Graneheim and Lundman's (2004) method for content analysis. I transcribed interviews and identified meaning units, as being the smallest units that contained insights about the problem area (Bengtsson, 2016; Graneheim & Lundman, 2004). I used sentences, and even paragraphs as meaning units as long as they contained "aspects related to each other through their content and context" (Graneheim & Lundman, 2004, p. 106). After coding, I used the condensation process to reduce the number of words in the meaning units before creating sub-themes. I used an inductive approach in the categorization of condensed meaning units in an

attempt to validate the theory (Hsieh & Shannon, 2005) and hence answer my research question.

After the analysis, the following themes emerged: Will for Interdisciplinarity, Mechanisms in Place and Student Motivation to Make an Impact as the most significant supporting forces; Fragmentation, Funding Mechanism of the University, Lack of Guidance, Support and Incentives, and Assumptions and Concerns about Student's Role as hindering forces. The themes that mark possibilities emerged as follows: An Enabling Ecosystem and Student-Faculty Partnership.

In Table 3, I exemplify how I used content analysis to form one of the themes, which is student's motivation to make an impact. I extracted meaning units from interviews and put them together in a table. These meaning units contained reoccurring sub-themes, which are identified as below. I further condensed these interconnected sub-themes to produce an overarching theme 'Motivation to Make an Impact'. Other themes were established using the same approach, and later categorised under supporting or hindering forces or possibilities.

**Table 2: Content analysis applied for the Research Question**

<b>INTERVIEW</b>	<b>MEANING UNIT</b>	<b>SUB-THEME</b>	<b>THEME</b>
INT1	I wanted to work on a real practical problem and work in partnership with actors and stakeholders, build meaningful relationships and make contacts.	Real case Real stakeholders  Meaningful relations	Motivation to Make an Impact
INT2	It sounded inspiring and sounded like something kind of on the point of what we were missing at the university, to work interdisciplinary. I do not see urgency from the uni to deal with the crises, but I see the urgency from the students side.	Gap in studies  Interdisciplinary approach Urgency	
INT3	I saw a disconnect at NMBU. I thought that DfS might give me the arena to further my own knowledge on sustainability, or to try to persuade the university to take further actions towards becoming more sustainable, or making actions become more sustainable, both in regards to the daily operations but also in regards to what they're teaching, what they're preaching	Enact on own environment Learn and influence	
INT4	I've wanted to produce something that had more impact, it was a better demonstration of my capability than just writing a thesis on the one hand, and on the other because I wanted to contribute something rather than just critique. I was motivated to get NMBU reflect onto itself.	More impact Contribute rather than critique Demonstrate capabilities Enact on own environment	
INT5	Within the fields of faculty, there is not really too much interaction with the world and using this information publicly, like you against the real world, so when I heard you could design a solution within the field, for like a real world case, with real world actors sparked my interest.	Real case Real stakeholders	
INT6	Link theory to practice, and address the fragmentation in the uni, between students, between students and academics, across faculties and between the uni and the society I wanted to influence the academics	To initiate interdisciplinarity Influence academics	

### 3 RESULTS AND DISCUSSION

This chapter is composed of three sections. First, I discuss each theme under the categories of supporting forces, hindering forces and possibilities. Later, I present a synthesis of these categories. I end with discussing the limitations of the study and reflecting on its methodology.

## **3.1 WHAT ARE THE SUPPORTING AND HINDERING FORCES AND POSSIBILITIES FOR INTERDISCIPLINARY STUDENT-DRIVEN EDUCATION?**

### **3.1.1 Supporting Forces**

After a content analysis of my findings, I clustered three sub-themes under the supporting forces for interdisciplinary student-driven education, which relate to institutional support, structural support and motivational support, using the interdisciplinary, student-driven course Design for Society as a case. These elements were explored under the headings of 'Will for Interdisciplinarity', 'Mechanisms in Place' and 'Student Motivation to Make Impact'.

#### **Will for Interdisciplinarity at NMBU**

The interviews with administrators, teaching staff and students revealed that there is a strong will for interdisciplinary work in the university. After a thorough analysis of NMBU's strategy and quality assurance, I comprehend that interdisciplinary education and research at NMBU is also a prioritised area of focus.

NMBU's administrators have a strong determination that interdisciplinarity has to crosscut education, research and innovation. I found that their willingness to integrate interdisciplinary approaches is grounded in a need to address sustainability issues while uplifting the university to assume a role to advocate for and participate in the imperatives of sustainability (Cortese, 2003). The administrators that I talked to offered their appreciation and sympathy for Design for Society's efforts to widespread interdisciplinarity for sustainability education and influence wider circles in the academia: *"it's really good and goes right into the heart of what leadership is talking about, what we were working for... .. we have to support and we have to take advantage of students that take the initiative, that want to do something different, they're engaged."*

These statements are reflected in NMBU's quality assurance document: According to NMBU's quality assurance statement, students "should be able to work in an international, interdisciplinary context and master generic skills that are relevant to society and working life. Collaboration with the social and working life is therefore crucial to achieve high relevance in the study programs" (Studieavdelingen, 2019). Under the learning section, one can read that the statement has no mentioning of SCL, but contains minor fragments of the concept that ultimately do not add up to create an overall understanding of student-centredness.

Similarly, NMBU's current strategy document, which represents NMBU's understanding of quality in education, highlights the complexity of sustainability problems that cannot be solved by and through the lens of isolated disciplines and individuals. It introduces interdisciplinarity as a fundamental, guiding principle for its overall activities. It also promises to train students to handle these complexities by instilling them with the mindset, knowledge, competencies and skills. In this context, NMBU promises the development of necessary environments and the culture to invests in and stimulates interdisciplinary efforts and ensures that research, education and innovation will not be divorced from each other. I find these efforts meaningful and

significant to initiate efforts on the ground. This was a very supportive element, because the decision makers that we brought our idea to were thrilled at our initiative.

One teaching staff assented to the willingness of the university and how Design for Society utilised that as a supporting force to deliver a prototype. Reflecting onto the preparation process, I can easily say that our efforts to construct an interdisciplinary learning environment were well received by the faculty and administration.

Interdisciplinarity is part of the strategy that wants the students to work more together. But the policy at the university is to support collaboration across the faculties and it has been for a long time. So this is not something new but it's it takes some time to implement it, and it takes time to do it. So I think that what you have done is very important to push the doors that are almost open.

In the interviews with student participants, I found out that students perceived as challenging when they engaged with different ways of thinking outside of their disciplinary expertise. One attending lecturer interpreted this dissenting environment in a positive way. As a result, the student participants' willingness to challenge their disciplinary silo and embrace new perspectives was very refreshing, because if we want education for sustainability, we need to be able to develop capacities to engage with different disciplinary knowledge (Herranen et al., 2018; Sterling, 2016; Vesterinen et al., 2017). Despite these challenges, varying transferrable skills, meaningful experiences and knowledge emerged by working together and struggling, as put forward by student participants themselves and a teaching staff. Such outcomes comply with student-centred learning approaches (Wright, 2011).

I link these statements of achievement and support with NMBU's stated ambitions for interdisciplinarity and come to a conclusion that Design for Society used the opportunity to translate this will into practice. I understand that interdisciplinary student-driven education can greatly benefit from the presence of an established, an even a stated will by their institutions, because interdisciplinary work is seen as a necessary component for tackling sustainability challenges (Sterling, 2016), not only in Norway but also across the globe. Finally, my examinations led to an understanding that governance at the university is key for establishing institutional support for renewed pedagogical models for sustainability education, including student-driven education, as echoed in Vesterinen's (2017) study. In order to integrate this willingness for interdisciplinary work into strategy and practice, and facilitate transitions in perspectives and behaviour, higher education institutions can utilise frameworks and alignment models found in literature (Ashby & Exter, 2019; Holley, 2017). As such, interdisciplinary student-driven education can thrive everywhere.

### **(Invisible) Mechanisms in Place**

One very significant supportive force was found to be the Special Syllabus mechanism that exists in several Norwegian universities, including NMBU. Another significant supporting element was reported as the Learning Center and its Learning Philosophy. Even though these two mechanisms are ways to implement interdisciplinary and student-driven courses, my analysis found them unbeknown to students. Therefore I consider it relevant to call this section "(Invisible) Mechanisms in Place".

Thanks to the special syllabus mechanism, as Course Coordinators we bypassed institutional barriers when developing Design for Society. It is a mechanism that students can use to take action to fulfil their academic needs in good time. It is a wonderful way of initiating partnerships and implementing innovative courses, because it allows working across faculties and as a group of students, according to their learning interests. I find the encouragement of collaboration across faculties and as a group very significant, because it permitted our operations and legitimized our prototype. One of the Course Coordinator's statements relates:

We first took the idea of Design for Society to the Educational Committee to get the course incorporated into the curriculum but it would take a very long time that by we would have graduated by the time it might be running. In order to surpass the issues of time and legitimization, special syllabus mechanism was handy and you had prior knowledge how it works.

Surely one has to know how the mechanism works to make it happen. A student participant said, *"I knew about that, but I never would have thought of doing that"*. My previous experiences with the special syllabus elevated our capacity to operationalize the course as quickly and efficiently as we did. Syllabus design, readings to attach, signatures to obtain, approvals to get, justifying the number of credits you ask for, writing a course description, filling in a learning agreement, and submitting these before deadlines, are some of the steps to follow precisely during the process. This led me to analyse NMBU's website for more details. For example, while there is plenty of information on the Norwegian site, the information on the English site is not as comprehensive. I also reviewed Chapter 23 of the Academic Regulations to understand how the bureaucratic implications play out in the implementation of this mechanism (University Board of the Norwegian University of Life Sciences, 2017).

The vague and loose description as to how the mechanism can be implemented in practice was found as a supporting element as Design for Society benefited of this independence due to the absence of restrictions. At the same time it is an inhibiting factor because the complexity that arises while accommodating a group of students and doing so across faculties is not addressed. There are several executional barriers, such as whom the signing Faculty will be, to which faculty the completed credits will belong to, and most importantly, how the course will be funded are issues left in the dark. Furthermore, how that role would differentiate in an interdisciplinary and group-learning environment is not explicated. Missing from this logic is the difficulty of finding a course supervisor and convincing them to help to get your project into realisation, as this arrangement is considered as an extra workload, as supported in the interviews I conducted. One administrator acknowledges that these systemic challenges may stop enthusiasm and momentum.

However, I understood through participant observation, interviews and my own reflections that not everyone is aware of this educational opportunity. The (in)visibility of this mechanism emerged during several interviews with the students:

I do not think students know how to use the mechanism. Personally, I did not even know the special syllabus mechanism existed. Also, even if you do know, it is intimidating to go about applying it.



Clearly, there is a link between this educational opportunity and supporting student-centred learning, due to the responsibility and autonomy it encourages and the requirement of an active involvement of the student (Damşa & Lange, 2019; Wright, 2011). As a result, I understand that these two mechanisms can empower students who want to take charge of their education because structural support is found as a significant element in similar cases (Vesterinen et al., 2017). One challenge is to take more responsibility to increase the visibility of this mechanism and promote it. Then I can imagine other universities getting inspired by this mechanism and incorporating it into their course design frameworks. Lastly, I arrive at an understanding that how important it is to have institutional encouragement and structural mechanisms in place ensuring ideas are translated into projects our courses that would promote interdisciplinarity and collaborative work to tackle wicked problems.

The other very significant supporting element in the case of Design for Society was identified as the Learning Center at NMBU. The interviewees shared repeatedly the help and guidance from the Learning center as a very significant element that led to the fruition of this project: “an opportunity within the bureaucracy” as one Course Coordinator called. Mike Moulton, the head of Learning Center, helped open doors, mediate between the university leadership and Design for Society, but also believed in us and enjoyed being involved and facilitative in our initiative. I draw a line between this emotional and structural support and SCL, because learner support and teacher support is fundamental to creating a student-centred learning environment (Klemenčič, 2017). Unfortunately, through the interviews, I learned that this support is not well known to students.

As a resource center for learning, the Learning Center disseminates NMBU’s learning philosophy, which is rooted in an understanding of developing Life Long Learners, as shared on the website: “Our Learning Philosophy reflects on how we want students to develop *knowledge for life* during their time here at NMBU (emphasis in original text)” (Dyb, 2016). If students were aware of this possibility, they could have used this resource at their disposal. Yet, I found some shortcomings to this resource after the analysis of my findings.

I am sympathetic to the notion of life long learning, yet, according to administrators, the learning philosophy represents “more of a learning vision” and they acknowledge that there is still a long way to get there. Meanwhile all the statements that make up the learning philosophy ring well in my ears, I am full of confusion and contradiction regarding this manifesto of statements.

At the first instance, the statements do not sit within a framework in a holistic and comprehensive manner. It brings questions into mind, such as who created this philosophy and how. The statements, in their totality, do not represent student-centred learning in its entirety, rendering it lacking in terms of its scope and depth. Even though I can find fragments of the student-centred learning theory, the statements fall short in scope for encompassing the vital methods and techniques for learning and teaching that are essential to student-centred learning theory. Finally, the statements intend well, yet without much focus on removing barriers to learning.

Furthermore, these statements oblige me to question the validity, legitimacy and applicability of these concepts, whether this philosophy provides the university with a foundation stone for the work they do. My questions begin with how it is ensured that the learning philosophy is adopted and applied by the teaching staff and by whom. The Quality Assurance website assures that each faculty decides on these issues within their own context. Upon my experiences, I have deduced that many teaching staff does not fully endorse the learning philosophy. There are different course and study programme assessment measures, but do they actually point out to how their experiences represent the statements in the learning philosophy? Do teachers reflect on this matter and self-evaluate? In such cases how do students bring this issue into attention, or even more importantly, who should do that? Furthermore, who should one contact? Who should guide the actors that make up our learning environment for better compliance with this philosophy, or facilitate a transition into integrating these concepts into the educational environment? Whether these statements of optimism take into account differences in learning interests and the need to work interdisciplinary is also under question.

### **Student Motivation to Make an Impact**

Another supporting force was identified as the student's motivation to make an impact. Reflecting onto my experiences during the Action part of this research, this motivation was the exact driving force that pushed me to develop this course, and my student peers as they stated in their interviews.

When queried the students about their reasons to be involved in the course Design for Society, they discussed their own reality and self-expectations whereby NMBU was lacking to offer them what they wanted or needed from their education. This is the case for many universities as they cannot keep up with changing learning contexts, changed student demographics, internationalization among others (Damşa, Lange, & Elken, 2015; Green, 2019; Stensaker, Frølich, & Aamodt, 2018). Even though there are nuances about what the students felt was lacking or incomplete, the responses indicate that engaging agency by working on a real case with stakeholders to create an impact was the main driving force to become involved in Design for Society.

One student discussed the university's attempts to portray itself as a leader in sustainability, one of the reasons why this student enrolled at NMBU. Interestingly, a sustainability focus was not at their disposal in this student's studies. Upon being introduced to Design for Society, the student considered this course a well-fit arena to enhance their knowledge base and communicate that knowledge to make an impact in an environment relatable to the student. Another student agreed that getting involved in Design for Society was about interdisciplinary work on real projects. This student believed interdisciplinary education was missing at the university. This statement may be a result of universities stagnating in staying relevant to the global crises nowadays (Arvanitakis & Hornsby, 2016b).

Similarly, one of the students related that their motivation was the need to act and not only critique in order to urge NMBU to reflect on itself: "*..because it was something that I felt I wanted to act on because I been complaining about it for so long*". Klemenčič (2017, p. 77) describes this as

agency, i.e. “students’ capabilities to intervene in and influence their learning environments and learning pathways”. Also, the student added: *“it was more work, but I felt it was necessary, both for myself and for creating the kind of place that I wanted to be and act in”*. The student wanted to act because they were compelled by the affection, meaning and responsibility they found when they were involved in this student-driven course. This is illustrative of what Aranowitz (2008) envisions in his portrayal of the informed citizen, who is “capable of participating in making the large and small public decisions that affect the larger world as well as everyday life” (as cited in Giroux, 2010). According to Freire education should recognize not only the need to read world critically, but also the need to intervene in the larger social order, and this connects education to the acquisition of agency (Giroux, 2013). Design for Society allowed that agency to emerge through its pedagogical offerings.

For another students, no courses were available that offered linking theory with practice through an interdisciplinary approach that was in English. This student wanted to influence the surroundings meanwhile addressing the fragmentation between students, between disciplines and faculties and between the university and the wider society. Through Design for Society, the student was able to address these gaps at the university because the course was able to provide that environment. The quote that follows is illustrative of this view: *“I thought doing something in your own environment, something that you would already do outside of school, and take credits for it would be meaningful”*. This is an example for the effective approach devised from the student’s perspective. Student-centred learning affirms the link between student engagement and local problems or contexts that readily connect to students’ experiences (Barab & Duffy, 2012). As students, we were aware of that and wanted the cases to be chosen by or developed by students themselves. Not surprisingly, utilizing local problems and choosing the cases themselves prompted responsibility from students to invest in their cases and get satisfaction by attending to issues that they could impact and were impacted by personally (Pintrich, 2003).

One student drew a link between building meaningful relationships and working with non-academic partners, which, according to the student, would be helpful in pursuing a place in the work life after finishing the degree. Inquiring in a real case and having the chance to develop a solution, pitch it to the actual stakeholders and get their feedback points out to an increased motivation in students to do work and can also contribute in narrowing the gap between academia and society. Damşa & Lange (2019, p. 11) illuminate that quality of education is achieved when learning processes are “enacted to provide a meaningful learning experience”. Surely what delivers a meaningful experience is very varied and subjective to the student, yet the interviews revealed that meaningful work might be tightly associated with reaching out to real people and improving real challenges. The possibility of contributing in something bigger than themselves propelled these students to operate in a different fashion.

By analysing their motivations, I tried to put forward the exigencies of students toward their learning. The students reasoned that Design for Society provided an arena for them to express those learning interests. For example, there was an emphasis on establishing dialogue to create democratic process where everyone’s voices were heard. Another example is the fine balance between autonomy and mentorship that Course Coordinators tried to create, which was found as very favourable by students. As such, the motivation to make impact and exercise agency

could translate into a learning experience. According to them, their learnings are transferable and can be used in different contexts, even out of the university context. These findings show great similarities in terms of building agency, providing meaningful learning experience, and enhancing ownership to learning, to Herranen's (2018) study on student-driven education. One of the community partners we teamed up with confirmed the impact resulted by our work:

It is a very concrete example of a way of doing this. I think it's the way you also you were in contact with different stakeholders in the area. And just by being that people are exposed to new ideas and new thoughts, they are confronted by doing stuff. And so that's rare. So definitely, absolutely I think it was a good sort of intervention and then I'm very interested to see how can this be developed further.

In his book *Instead of Education*, John Holt (2004) discusses that when our focus is on real concerns and real needs, there is meaningful learning. Reflection onto the findings, I find that there is a common willingness to make impact by working with real people on real issues, especially in an interdisciplinary way. There is also discussion around the fact that this is also how they expect and even prefer learning to emerge. Further analysis of their statements reveals that this interest stems from a place of urgency, critical thinking, a gap in learning interests, a need for building meaningful relationships and an interest for contributing in solutions for a sustainable future.

As Course Coordinators, one of our ambitions was to engage in real cases with real stakeholders, as it was found to be a major interest for other students as well, rather than imaginary assignments and in-classroom activities. Not only we brought real cases, we chose local ones that we could relate to. Barab and Duffy (2012) describe authentic problems personal relevance, which in turn, induce urgency and create satisfaction for being engaged in the student. Working collectively on a burning issue as part of the students' social reality is found as a motivation for being a part of the course Design for Society. When asked about this impact, students were positive that their active role influenced their surroundings, in many different ways. One of those ways was described as influencing their stakeholders to take different decisions, and the other mode of impact was the agency they exercised through classroom experience. One of them explained: *"it's shaped the way I've been thinking when doing these different courses"*.

Just like Freire (1993) and Damşa & Lange (2019) articulate student's engagement is correlated with investigating their reality, which means that students' social realities should play a prominent role in course content. As such, Design for Society's offerings of opportunities for interaction, differentiated learning trajectories, and knowledge production might fulfil the guiding principles of student centered learning environments.

Overall, using Design for Society as an example, I can argue that student-driven courses can be successful in bringing in elements that can speak to students to engage not only with their minds, but also with their hands and hearts. Under the light of these findings, it is possible to see the importance of taking seriously that education should consider the needs and interests of the students in order to link what they learn to how they live their everyday life (Giroux, 2013).

### 3.1.2 Hindering Forces

The pathway to interdisciplinary student-driven education was found to be barrier-laden in the case of Design of Society. Through a content analysis of data, I clustered four sub-categories under this strand, which relate to institutional, structural and motivational barriers. These barriers are explored under the headings of Fragmentation, Funding Mechanism of the University, Lack of Support and Incentives, and Assumptions and Concerns about Students' Capacity.

#### **Fragmentation**

One hindering force that came up in the interviews and also appeared in the course documents of Design for Society was disciplinary silos and other manifestations of fragmentation experienced in spatial aspects, experienced between the student and the professors, and between the university and the outer world. According to the Course Coordinators, the course emerged as a result of this fragmentation, but also suffered from the same mentality. This quote articulates how DfS targeted this fragmentation:

I got involved in DfS because it seemed like the perfect idea to address the fragmentation of all different departments. Students are fragmented, the social groups are fragmented. University is fragmented from society; society is fragmented. Half of the university departments can't even talk to each other; they cannot collaborate on making the world a better place in one course. So how can they possibly convince the wider society to change?

Professors acknowledged the disciplinary silos in the university and the hardship of overcoming this fragmentation. One of them related:

Most universities are like that, creating silos, among faculties among disciplines. Unfortunately, we are in kind of system that very often instead of improving collaboration it's forcing competition also among departments. So it's very, it's very tough sometimes and so I thought it [DfS] was a very important initiative.

Exactly it was an intention to bring into attention this fragmentation, and how one pilot course for initiating relationships, building familiarity to collaborate between different departments as well as between different student groups can do so much. One teaching staff, who participated as a lecturer addressed the need to eliminate fragmentation, especially when working on problems that require collaboration.

I think we really need to destroy some barriers, among knowledge, among schools, among methodology so on. But especially among people working on the same problem, the same topic with different methodologies. It should be richness instead very often it's a kind of limiting. We have to find a way to connect.

This statement draws from the fact that there is a need to overcome fragmentation and 'find a way to connect', because sustainability problems require us to work across disciplines with different perspectives (Cortese, 2003).

Not only academic staff and departmental units are separated, some student participants expressed that it is very unlikely for them to get together with students from other disciplines. This fragmented student study life does not help to create the learning environment that serves students the best, as stated by NMBU's strategy document.

The special syllabus, as described before, serves as a mechanism to connect. It allowed us to overcome the fragmentation among different disciplines that students also suffer from. However, when students come from different faculties, then the weight of content of the course, technical language used by student peers, ease of group-work, among others, may develop into messy situations. This situation was observed in both of the student group projects during the action part of the research. I also learned through the interviews that this is the case, as all of the students discussed how their disciplinary silos created numerous barriers against successful interdisciplinary student-driven education. According to their accounts, these disciplinary barriers gave rise to challenges including different disciplines having different working styles, demands for different types of deliverables, their disciplinary languages, the theories and tools to apply in cases, hence difficult synthesis of ideas and theories, lack of communication about one another's specialities and strengths, and even what their disciplines are good at when doing inquiry. One student participant elaborated this issue as such:

I had to learn to work with people who I wasn't used to work with. It was more difficult than expected to work across disciplines, because of different backgrounds, their understanding of the problem can be very different, but that was a great learning. It was not easy to bring our skills forward. The project was richer for having a lot of different disciplines, but I could not utilise fully what my own disciplines could bring. Yet it's good to get out of this bubble.

This fragmentation is also reflected in a spatial aspect, which can be observed when one takes a walk around the campus. Disciplinary silos are reinforced because different disciplines are situated in their own building. According to my experience, it is not very easy to meet with students from different faculties. When Design for Society organised a 'Campus Walk' event to discover underutilised spaces on campus, the rationale was: "...The campus is a beautiful place, and many of the buildings have lots of character (at least on the outside) but why isn't there the space to inspire a synergy between creativity, work and socialising. Many of the spaces, don't inspire collaboration or socialising. ... Following the walk, we will brainstorm issues and ideas. What could be done, how could the spaces be better used, by who and for what? How can the spaces be integrated with and into existing campus, student life and society functions?" (Design for Society Facebook event, March, 2019)<sup>1</sup>. One student drew a connection between how spatial design hinders interaction between teaching staff and students.

The design of the buildings doesn't facilitate interaction between professors and students. offices of professors are kind of, they never have to go past students if they don't want to. Which is very different to what I've seen elsewhere, working out a way of actually purposely designing the building in a way that forces staff to walk past students. They can't get to their offices without walking past student work areas.

---

<sup>1</sup> Retrieved from: <https://www.facebook.com/events/556671901503810/>

My reflections regard this finding as important because student-driven and interdisciplinary education inherently needs a collaborative environment, learning from the case Design for Society. In fact, being involved in the Action part of this course required immense collaborative work between the Course Coordinators, between Course Coordinators and academic staff and administration. Since sustainability challenges cannot be solved through the lens of one discipline, there must be efforts to facilitate collaboration in education. According to student-centred learning the learning environment should provide support of such collaboration. Even though Design for Society was operationalized despite this fragmentation, working around these constraints resulted in burnout and frustration. I conclude that removing this hindrance would greatly facilitate interdisciplinary student-driven education thanks to better collaboration and increased interaction.

Overall, my findings correlate with Holley's (2017) analysis that reductionist disciplinary boundaries make collaboration intrinsically difficult. The case of Design for Society can give some insight into what difficulties to expect when working across disciplines and engaging different disciplines. The findings tell that there is a need to find a way to connect despite the fragmentations, especially when we are faced with numerous sustainability challenges that demand new perspectives and new approaches (Ashby & Exter, 2019). According to my analysis, the lack of suitable models and cultures of collaboration across disciplines and the lack of facilitative physical environments were identified as hindrances to interdisciplinary student-driven education.

### **Funding Mechanism of the University**

When addressing the importance of interdisciplinarity and fragmentation, some of the interviewees raised the issue around the funding mechanism at NMBU. The interviewees noted the way finances are currently distributed in the university does not facilitate constructing interdisciplinary courses, whether or not it is student-driven. Holley (2017, p. 17) explains this phenomenon: "interdisciplinary programs may struggle with revenue generation, depending on their organizational structure and their place within the institutional hierarchy".

Faculty staff and students that were interviewed underscored that the funding mechanism in research and education is one of the driving forces for the way professors are burdened. Indeed, the debates of funding in higher education institutions center around the distribution of endowments between research and education within the institution across its faculties (Curaj, 2015). A professor maintained that this situation reinforced competition for financial resources, while most of their time and energy were spent on formulating new grant applications, and their teaching suffering as a result. In order to understand this phenomenon in the context of Norway, I surveyed relevant literatures. The output-oriented mechanisms that determine the endowments depend on performance-based criteria (Frølich, 2007). As part of the education output (Frølich, 2007; Kalpazidou-Schmidt, 2012), the credits completed by the students go to the faculty the credits are taken and completed at NMBU. Therefore, courses need to be positioned under a faculty, which prescribes to where the funding generated from the credits will eventually return. When courses are interdisciplinary as a result of the collaboration of two faculties, administrative and teaching staffs that I interviewed were unclear how the generated

credits should be distributed. About this issue, I talked to an administrator at NMBU. They stated that they were aware of the hindrances caused by the financial structuring in the university. His acknowledgement reinforced my conclusion that the way money is distributed at NMBU is not fostering new collaborations to be born and advanced.

Performance model aims to improve education as measured by the credits and graduates produced and increase research as measured by research publications (Frølich, 2007). However, according to the research and according to the faculty staff interviewed, there are pros and cons to this educational reform. One professor related that this clashes with their teaching responsibilities, unless their research is about their teaching. Another professor who I had an informal conversation with, maintained that the incentive structures are not geared towards nurturing educational entrepreneurship, especially if it is to be established across faculties.

My analysis shows the impact of financial limitations on entrepreneurial staff and students. This type of model is generic and seen in many universities across the globe (Curaj, 2015). As a result, I understand that no matter where we are in the world, the financing mechanism of higher institutions have a significant impact on establishing and sustaining interdisciplinary environments and unconventional ways of collaborating across disciplines and roles. As a result, a funding model that incentivizes credits being generated within faculties cannot facilitate interdisciplinary student-driven education, taking Design for Society as a case, making funding mechanisms challenge to be worked on for interdisciplinary student-driven education.

### **Lack of Guidance, Support and Incentives**

The need for learner guidance, support and incentives emerged numerous times during the Action part of this research and through the interviews held with Course Coordinators. Even though the Learning Center was crucial in overcoming certain barriers and accelerating certain processes, by its own I understand that finally it did not have sufficient resources and means to address the hindrances Design for Society experienced. As such, interviewees reminded that such lack of guidance and incentives almost ceased the project. Reflecting onto the process, I also agree that without much help it was an overwhelming process to launch an educational prototype in the university; almost an "uphill battle" as one Course Coordinator resonated.

During the action part of this research, our attempts to discuss the current needs and continuity of Design for Society took us to present to and talk with educational committees, student societies, student representatives, professors, and administrators, among others. "*Leadership at the university followed the idea up close and found it new, exciting and located within the picture of sustainability*", as one administrator related. Even though it is very important to receive praise from these organs and individuals, Course Coordinators lamented over the absence of feedback to and support for curriculum design from academic staff despite numerous requests, or lack of guidance with regards to who to go to ask for academic and social support, silence towards our requests for endorsement and consultation, and lack of time to participate in Design for Society. One simple example is how one student participant perceived the special syllabus mechanism as an intimidating path to follow, because of the student did not know where to get support



(requirements explicated in the section 3.1.2). Such obstacles prevent students to exercise agency over their education even though there are mechanisms and motivations that can enable it.

To the Course Coordinators, the knowledge of whom to consult and where to seek guidance was not immediately available. When asked about what made them continue, one of them answered as *'sunk costs'*, meaning that it was necessary to follow the project through as many investments were already put in. It was also mentioned that there was a responsibility over our student peers for completing the project. This Course Coordinator did not recommend the project to other students due to the lack of support and incentives, and added: *"I think to expect anyone to do what we did with the lack of resources we had, and doing it for free is just absolutely ridiculous"*.

Not only the short timespan, but also the problematized position of being a student hindered the ability to understand the organizational structure of the university, the way the university is funded, and the opportunities toward working interdisciplinary as students, even though there are considerable opportunities at NMBU. As a result, the discovery process to identify the right structures and the right people, who held the resources and decision-making abilities to be able to help us led to a waste of resources, burn out and deep feelings of resentment. The figure below explains which organs have decision-making or advising powers.

In an interview, one student said that it's not likely that students will engage in innovative learning experiences because of how difficult it is to navigate within the university's organizational structure and bureaucracy. One student who works as an Øvingslærer stated that if their efforts were not paid and there were no trust between them and the professors, they would not engage in this role, noting the importance of incentive mechanisms. Some students declared this incentive mechanism can be in form of credits or an income, or a certificate to recognize and endorse the efforts of the student for designing a course for other students and running it.

The presence of support systems and incentives might be associated with how students are willing to follow through their ideas and educational projects. For example, I learned that some of the students did not take their ideas to NMBU but brought it elsewhere, or they just gave up on their ideas because of these reasons. Under the light of these experiences, I have found that unless there is a support system, it might be an arduous and even unfavourable path for students to drive their ideas and reflect those in their learning environment.

These findings are echoed in the European Standard and Guidelines for Quality Assurance (2015, 1.6), which stipulates that SCL is taken into consideration as a lever supporting system for student (and teacher) support and guidance (Klemenčič, 2017). Especially for student-driven education, which focuses on more freedom in goal setting and divergence in pedagogic models, learner-support becomes more critical and essential to create the suitable learning environment (Herranen et al., 2018).

### **Assumptions and Concerns about Student's Capacity**

The 'Course Coordinator' role was a prototype as much as the overall course Design for Society was a prototype. We assumed different roles in different times and places as the situation

required; we switched dynamically between being a learner, a student-teacher, a facilitator, a mentor. The responsibilities pertaining to the role focused on four different clusters of duties: 1) administrative, facilitation and coordination, 2) liaising, 3) strategic management, and 4) syllabus development (for more details on this role, please see Appendix 5). Considerable time put aside for a very long time, which was a determinant of success in order to accomplish the project's objectives, as well as to design, develop and deliver a course, which aligns with NMBU's mission, vision and values. A lot of effort was put into ensuring the initiative's embeddedness, without any results. As the framework and the themes of each week got clarity, we started designing each week's contact hours. Through personal efforts and deep dives, we discovered concepts, read papers, studied other courses' framework and pedagogy, supported it with videos, and podcasts. We invited guest speakers along the lines of their work and experience. This led to constant making and remaking of the syllabus, which in return, became one of our strongest suit (please see Syllabus in Appendix 6). Student participants were not involved in the planning, but they contributed by dialogue, feedback and reflection in plenary and individually during the running of the course.

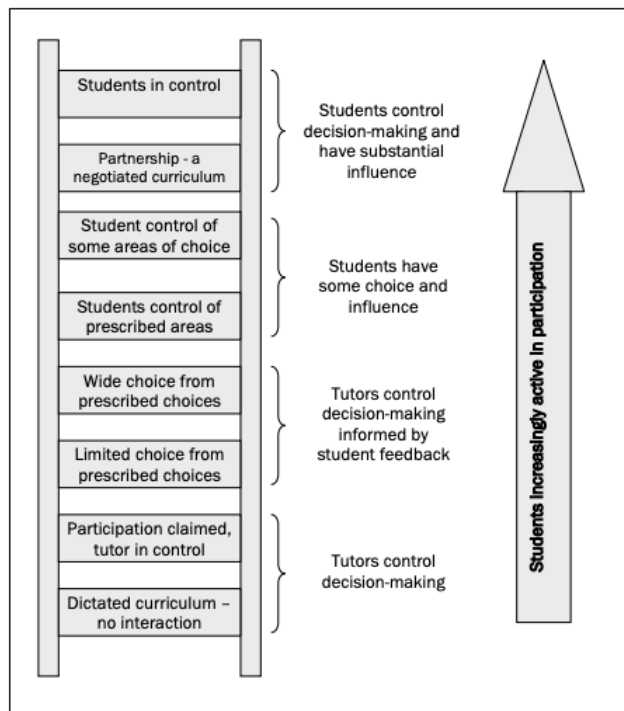
One caveat to driving Design for Society and advocating for its continuity was the approach from our university, whose lack of understanding of how to partner up with us students led us down a frustrating and arduous path toward completing the semester. Throughout our work for the course, I became aware of the ingrained power structures in the university and I became conscious of the problematized distinction between student and teacher. During the Action part of this research, I reflected on my role as means to question and negotiate the boundaries of what engaged students can stretch.

Critical pedagogy engages in practices toward challenging and transformation of traditional roles, power relations and structures (Freire, 1993). On the opposite side of what we did with Design for Society sits the banking model of education. Such traditional educational models view students' customary role to be subordinate, passive, conforming and non-confrontational in the academic project, whereas the teachers' disciplinary expertise gives them authority, legitimacy and accountability over the learning process (Bovill et al., 2011). Eventually, these models also reflect onto identities that define our positionalities (Burke, 2013; Chattopadhyay, 2019), which in turn inform faculty expectations of students, which are often rooted in long-held assumptions about students' capabilities and capacities to undertake tasks that relate to pedagogical practice (Cook-Sather, 2014). For example, students as can be respected, capable and valued individuals in other domains, but their role as a student in the learning context might position them as unqualified and subject to intervention (Cook-Sather, 2010, p.), just like I experienced. As a result, student-expertise becomes under-valued and under-recognized (Burke, 2013). As the young people of today, students must be more engaged and empowered than they are to cope with the sustainability challenges of tomorrow (Stoddard et al., 2012). Neary (2013, p. 587) summarises: "students are a largely untapped source of rich and original ideas that can all too often be overlooked when developing the experience of those very students". This makes me ponder about the lost potential that could have come from the students, as we are typically very high in number in higher education institutions (Evans, Jones, Karvonen, Millard, & Wendler, 2015; Neary, 2013).

On the other hand, sustainability challenges require students to be reflective, critical, collaborative and creative autonomous learners (Hald, 2011). Therefore sustainability education should offer transformative and generative education (Herranen et al., 2018) as opposed to a banking model of education. As a result, different roles and responsibilities should be encouraged, because “higher education should not only support students in acquiring a pre-existing professional identity but should also facilitate the creation of new identities of professionalism” (Vesterinen et al., 2017, p. 6).

However, in the case of Design for Society, we encountered obstacles due to the boundary-crossing role we assumed. Faculty’s concerns mandated the role of Course Coordinator as counterintuitive, which is a common challenge cited in student-faculty partnership literature (Bovill, 2019; Cook-Sather, 2010). I reflect on two separate conversations with two different teaching staffs, which mirrors this view of student. One of them shared: *“It is not a model I would suggest to follow, because it cannot be a student’s responsibility for the knowledge the students are given”*. The other teaching staff found the pedagogical backbone weak and unjustified in terms of quality issues because students are not qualified to act in the classroom as teachers and thus, ensure quality of learning.

These reservations are addressed in Bovill & Bulley’s (2011) study that such ‘top-rung student control’ might be challenging in terms of validation within our current quality assurance systems. As explained before, quality of education is associated with student-centred learning (Klemenčič, 2017; Nordic Institute for Studies in Innovation, Research and Education (NIFU), 2018). The testimonials of student participants indicate that students who took the class differentiated Design for Society from any other course they took in terms of meaningful and impactful learning that endowed them with transferable skills and with several other student-centred learning attributes. Yet, examples of the banking model of education, which favours passive transmission of information in the form of lectures or supports professors who do not interact with students (Freire, 1993), representing the lowest level in this ladder, coexist with transformative, courageous and innovative student-driven courses like Design for Society within the same institution, as pictured in Bovill and Bulley’s (2011) ‘ladder of student participation in curriculum design’ (please see Figure 2).



**Figure 2: Ladder of student participation in curriculum design (Bovill & Bulley, 2011)**

Therefore, I find such reservations from faculty relevant and important, as they are real and should be addressed. However I also hope for the time where such initiatives, like in other parts of the world, will instead receive recognition, encouragement, or reflection for exploration and improvement. Nevertheless, experiencing the impact of being a dissenting student through acts of selfless thought and activism was transformative for me. I negotiated the autonomy, voice and responsibility (Klemenčič, 2017) that I was given on paper but had challenges in terms of use in practice. It gave me more reason to want to transform the university and disrupt status quo.

Student-as-partners theory approaches the question of the extent of responsibility given to the student and how it should be shared (Felten, Bovill, & Cook-Sather, 2014). Additionally, scholars look into the negotiations of accountability and eligibility in such partnerships (Cook-Sather, 2010). There is ample research that points out to the numerous benefits of assigning different roles to the student other than 'learner' and involve students with different roles in decision making processes (Bovill, Felten, & Cook-Sather, 2014; Cook-Sather, 2014; Owen & Dunne, 2013). In order to understand what responsibilities can be assigned to the student and under what conditions, I interviewed an Øvingslærer from NMBU. An Øvingslærer is a student employed by the university to work as an exercise teacher in the classroom, and the duties can span facilitation and mentorship for casework and about group dynamics. The interview put forward the concept of mutual trust between the professor and the student about what kind of responsibilities the student can bear in the classroom setting. I also understood that completing a course may empower a student to tutor the next round of students who will take that particular course, as in the case of this Øvingslærer. The student's legitimacy is ensured by the teacher's trust, which is based on the student's immediate experiences stemming from their involvement in the course and an affirmation through successful completion of the course. Such a role is strikingly similar to what Course Coordinators have done all along voluntarily.

Not only the faculty, but also we had reservations about assuming a role as big as this one. It was overwhelming to deliver this project even though we were a group of three. Especially the lack of legitimacy hindered my ownership of my role, even though I created it for myself. I desperately wanted to be recognized for the work I put in. My own role, as an educational student activist, a learner, and a Course Coordinator confused me and made me question the fine balance between authority and autonomy. Even though I knew I did well and I did the best I could, I still needed recognition from the more powerful parties, whose powers spanned the spheres of respect, validation, approval, decision making and financial compensation, among others.

Reflecting onto actions and attitude - what are we doing? What am I doing? How am I doing it? Especially after today's session we had to be 100% on top of things, attentive, focused, engaging all 5 senses, bringing in imagination and creativity and also insight to feedback the students and motivate them. I am not their teacher, and I am not their buddy - who am I? (Reflection log, February 19, 2019)

Then is it the control of the professor on the design, level of responsibility, content and process that legitimises the role of *Øvingslærer* but not the Course Coordinators' in Design for Society? The administrators that I spoke to were hesitant to give more responsibility to the student to design a learning environment in which other students participate, without a proper framework that determines the students' eligibility. The eligibility concerns are addressed in Bovill's (2014) guideline, and is discussed in the Possibilities section (please see Chapter 3.1.3). There is another challenge though, when students are found eligible to act outside the customary roles as co-creators, designers or drivers of education this might threaten the expertise and authority of the faculty (Bovill et al., 2011; Cook-Sather, 2010; Klemenčič, 2017). One interviewee touched upon this challenge:

What you did were you actually challenged the conformity at the university quite a bit. So I think maybe they felt it was very interesting, on the other hand a little bit uncomfortable. This is uncharted territories, and you were the first to move. You really dared to go out there and do it.

In this example, the participant read the student-driven model as threatening and uncomfortable for the university. I feel compelled to explain this discomfort by Barnett & Bengtson's (2018) suggestion that universities are typically risk-averse and compliant to protocols, which makes them threatened by models that are non-conforming and experimental. Drawing from an interview with a Course Coordinator:

Part of the problem with traditional universities is they are scared of risk. They're really risk-averse. So they must create space for experimentation if they want to be a leader in society. Because trial and error is an integral part of disciplines like design, technology, and engineering.

While I touch upon the above recommendation for an experimental space in the next section, I have come to the understanding that DfS may have broken through the stigma of excellence by launching an unpolished prototype, and challenging the status quo in such an environment depicted by Barnett & Bengtson (2018). As the interviewee spoke, I understood that the underlying reason for this discomfort was indeed towards our daringness to assume a boundary-

crossing role by acting as Course Coordinators in Design for Society (Cook-Sather, 2014). Such non-conforming roles of students might come as a surprise, but “engagement as leadership appears most likely to occur when students feel that existing systems prevent them from having a significant impact on their current educational experience” (Ashwin & McVitty, 2015, p. 356). My point echoes this; we ventured into the Design for Society project because we were not completely satisfied with our education at the university, and we wanted to design our own educational experience.

While the faculty found our assuming of the role Course Coordinators invalid, the community partners we engaged with were impressed by our professionalism and agency. Indeed, it was one of the most compelling reasons why they were convinced to collaborate:

While with you it started in Oslo, it is much more quicker. We were sort of in the first meeting discussing how we could do things and what we loved about it was all the work good work you did in planning it and then using us on your way.

Design for Society’s ethos is “to put student in the driver’s seat” (DfS Course Brief, October 2018). Alongside this message, we communicated slogans of ‘be the change you want to be’. Just like we advocated for other students to be the driver and the change, we assumed a role that drove and changed the learning environment. Why we disseminated these messages can be understood against the background of student-centred approaches to the learning process and our need and want to be empowered. Student centered learning draws attention to increased student engagement in knowledge generation, understanding and centralizing students’ learning interests and assigning more responsibility and accountability to the student, and involvement in the learning processes (Damşa & Lange, 2019). Student-as-partner approaches assert that students gain skills beyond academic use, an evolved sense of identity and deepened learning that boosts confidence about the self (Felten et al., 2014; Green, 2019). These attributes explain why it is important to ‘put the student in the driver’s seat’, become a decision maker in their own learning process and assume more responsibility for what happens in their education.

Under the light of my findings, these reservations, concerns and assumptions are important, real and unsurprising, and act as major hindrances to Design for Society’s autonomous, student-driven nature. These perceived concerns are also found as a barrier in research focusing on student-faculty partnership practices (Bovill et al., 2014) and would impact negatively other student-driven initiatives that focus on learning and teaching that may emerge in the future. Finally, what I believe to be necessary is reflecting onto our roles in higher institutions, revisit our assumptions about each other’s roles and invite each other into our spaces to build empathy, understanding and care. We should be more engaged than ever to destroy the antiquated stereotypes about who the student is and can be. Overall, we should not only hear and understand student voice but also respond to it and work with it. I believe these to be the first necessary steps to remove the barriers that work against students as designers of their education simply because of their positionality as a ‘student’. As a result, this could allow students to exercise their agency in partnership with faculty, rather than counter to their faculty, because incorporating student perspectives into the design and delivery of education programs can

enhance higher education experiences and learning in ways that benefit both staff and students, and even whole institutions (Owen & Dunne, 2013)

### **3.1.3 Possibilities**

Under this section, I present various recommendations put forward by the interviewees, mostly by the Course Coordinators. These elements were identified as the essential mechanism that should be in place to elevate interdisciplinary student-driven education in which sustainability is thematised. The first collection of recommendations are categorised under 'An Enabling Ecosystem' and the second collection is called 'Student-Faculty Partnerships'.

#### **An Enabling Ecosystem**

"NMBU is to be characterized by a high quality of education and a good psychosocial learning environment. In order to achieve this, active and committed students are required who contribute constructively to the learning environment" (Department of Academic Affairs, 2019). Following this advice by NMBU, I hope the below recommendations can constructively contribute in creating a learning environment from the student's perspective, supported by Design for Society's experience.

The Enabling Ecosystem is Design for Society's primary recommendation as I analysed email correspondences, meeting minutes and notes. It was also put forward in the Final Event as an overarching theme addressing the hindrances that emerged throughout the action part of the research. Furthermore, it came up during the interviews with community partners, teaching staff and non-NMBU actors. Below I will elaborate the key themes that make up the Enabling Ecosystem.

#### **Prototype zone:**

The discussions centered around the *"..need an experimental space, both physical and metaphorical"*, as stated by one Course Coordinator, which can serve as a framework and social space pedagogic prototypes to flourish. The idea is to connect bottom-up initiatives with the institutional will to innovate and adapt to today's learning challenges. This prototype zone was recommended as a device to primarily support the innovative ideas that emerge from the student body as well as faculty staff who would engage students in open, participatory, inclusive and democratic ways.

Holley (2017) reminds that dealing with financial insecurities might restrict a collaborative environment to emerge from within the university. Especially interdisciplinary student-driven initiatives may experience hardship navigating within the institutional bureaucracy to find and secure funding, as learned from the case of Design for Society. A Course Coordinator explains, *"...arguing for a prototype zone, prototype zone that will allow such pedagogical experiments to take place so you don't have to fight or compete over the generated credits. And that will allow flexibility in collaborations and innovation will emerge"*. One threat is that the need to be positioned under a faculty may lead to compromising originality in order to benefit from the faculty's funding. As a result, a value-based, process-oriented, grassroots initiative might be co-

opted to align with the objectives of other actors. As such, a prototype zone with clearly determined organisational boundaries might justify allocating funding to fuel experiments like Design for Society. One very specific suggestion that might fit within the established infrastructures is an 'empty course code'.

Another element to the prototype zone indicates a 'culture of experimentation' as inspired by the Design for Government course at the Aalto University, which teams up the Finnish government to work on real problems; and according to their report, "experimentation will aim at innovative solutions, improvements in services, the promotion of individual initiative and entrepreneurship, and the strengthening of regional and local decision-making and cooperation" (Park-Lee, Annala, & Kaskinen, 2015, p. 5). Design for Society highlighted this element in the Final Event (May, 2019) by elaborating on 'an enabling mindset', which is also illustrated in the below statement by a Course Coordinator:

If they [NMBU] really want to get ahead, not doing things the traditional way, they need to be open to new ideas, they need to create a program that supports experimental ideas and they need to create space for people to be able to experiment in, to do things differently and support diversity. They should look at how can they clear the bureaucratic barriers to prototyping ideas.

Diversity is one of the key words used here, because of the possibility for enhancing richness and including out-of-box ideas, processes and people. Design for Society was founded on a principle to establish and support diversity by endorsing an interdisciplinary nature, not just across students and study levels, but across faculties and beyond the university, embracing cultural differences, languages and backgrounds. As one student participant explains, "*diversity is something that I think greatly benefited this course. We were quite a diverse group of people*".

A prototype zone and the enabling mindset to establish it should embrace uncertainties. Lygo-Baker (2019) discusses the need to explore the negative perception of uncertainty, since it is widely associated with instability and leads to no control over events. However, the author asserts that uncertainty is inherent in the learning process because it is an essential piece of change. I agree with this analysis and believe the notion of uncertainty in the learning should not be removed, rather explored and embraced. Student centred approaches like Inquiry Based Learning (Damşa & Lange, 2019), as well as more process-oriented frameworks like Design Thinking (Arvanitakis & Hornsby, 2016a), work with uncertainty because the wicked problems of our time require us to work with uncertainty and complexity (Armson, 2011).

Experimental space emerged in the discussions with regards to a spatial element in which student creativity can emerge and sustain and non-academic identities can be nurtured. Student-centred learning environments thrive when a suitable infrastructure is provided. (Klemenčič, 2019) example for a student-centered library or a student-centred studio is very relevant for our institution. Such collaborative spaces can foster and accelerate unlikely partnerships across different student groups (Hald, 2011).

**Advisory group:** Discussing barriers and opportunities with the students brought up the lack of a contact person(s), who could have helped or guided them through the bureaucratic barriers



within the system. Their focus for suggestion was the formation of a unit comprising of a diverse group of people, with academic and non-academic partners, to work at the interest of the students of NMBU for various forms of student-faculty partnerships. In their guideline for such partnerships, Bovill (2014) recommend a group of people cultivating support for partnership work in order to avoid working in isolation, as well as and highlighting diversity in terms of staff and students who participate.

The interviewees proposed that this diverse and supportive group should drive a 'Program of Support' that takes into its center the students' unique learning interests and needs at the time. This understanding is in alignment with student-centred learning, which focuses on student's needs in their learning landscape. The unit encourages broadening perspectives of leadership and inspiring students to think and act outside the silos of their disciplines, which would enhance interdisciplinary thinking and work (Holley, 2017), as urged by NMBU's strategy. Not only students are made aware of the possible mechanisms and other initiatives, they are also guided to enact their agency and supported to translate their ideas into projects, which was found as a hindering force in this case study. According to the accounts of those who participated in this study, such an initiative would positively impact student learning experience, because having had support to pursue their ideals, students would be challenged to think about preparing for unknown futures and the nature of the skill sets necessary to prepare for and respond to change and innovation, as asserted in student-centred learning in terms of learner support (Klemenčič, 2017).

Two examples come from Student-As-Producer program from the University of Lincoln and CEMUS from the University of Uppsala and SLU, both of which benefit from the support of an academic board in supporting student partnerships.

**Open call for student-driven interdisciplinary curriculum ideas:** An idea that emerged at a Course Coordinators meeting was directed at overcoming eligibility and funding issues. A call made by the university, offering funding for student-driven initiatives, which can meet the objectives of the call (for example working on a local sustainability issue in an interdisciplinarity way, using student-centred learning approaches). We imagined the process functioning like a typical grant call, in which initiatives apply with their original ideas to secure funding for running a project. Such an established system can include clearly determined criteria, which I think must be developed in a participatory manner with student representatives. Applications can be evaluated and approved by a board of representatives comprising of students, faculty and non-academic partners. An example for such an approving interdisciplinary university body comes from CEMUS in the University of Uppsala (Hald, 2011). This system may act as a springboard for initiating partnerships in which clear criteria can be determined. For example, the University of Lincoln offers grants to students and faculty through their Student-as-Producer program (Neary, 2013).

**Create an institutional framework:** One important recommendation was to create a framework, or a guideline to follow in order to utilize the special syllabus mechanism in more effective and creative ways. Examples from previous years can add onto the imageries of those who would like to use the mechanism. A similar initiative at the University of Lincoln might bring

inspiration with its Student-as-Producer program, in which “students are involved in the design and development of their own educational programmes” (Neary, 2013, p. 590). This program is facilitated “beyond the classroom to be the organising principles for all teaching and learning across the whole university” using “an interconnecting framework of infrastructural support” (Neary, 2013, p. 587). Such a framework spanning all faculties and mobilising all actors might help overcome the bureaucratic barriers experienced in the case of Design for Society, enhance ownership and initiate innovative partnerships.

**Novel methodologies:** As Course Coordinators, we precisely aimed to introduce design as an applied methodology for students to deal with the exceeding complexity of real-world challenges, and found it manageable to facilitate this methodology for non-designers across multiple disciplines. In the first week of the course, we held a bootcamp during which a community partner introduced this new framework by a series of exercises. Then, Design Thinking served as a backbone that we always referred back to during the process. Similarly, we found it useful to introduce the tools that are suitable to use at any critical point in the process, which unfolded as a common language and a baseline as student participants managed the inquiry and learned together. Student participants discussed that the use of Design Thinking methodology (please see Appendix 9 for more details) was key to understanding the inquiry process for their casework. They could situate their interdisciplinary work into a common frame and understand how they can contribute in addressing and improving the challenge they were facing using their disciplinary skills and knowledge. One participant shared how this methodology helped them overcome differences emerging due to their different disciplines and perspectives by creating a common ground:

We were speaking different languages, coming from different viewpoints, but methodology, design thinking was the common language because we learned about it together for the first time.

Design Thinking is increasingly accepted as a powerful tool for innovation since it is a very creative act (Mulder & Loorbach, 2016). How it translated into classroom experience in Design for Society was in the form of an active learning and autonomous learning, thinking critically and strategically as supported by SCL, which became transferable to new other contexts. Those skills are much needed in interdisciplinary work for sustainability challenges as noted in many studies (Herranen et al., 2018; Sterling, 2016; Vesterinen et al., 2017). A student participant elaborated as below:

It's given me a bunch of different frameworks and given me ways to think analytically about how to not necessarily solve problems, but how to look at them, how to pick them apart, how to analyse them, and how to go forward and trying to solve them. ... And I feel like a lot of the different frameworks and a lot of the different design thinking that we used at Design for Society I've taken that with me.

A teaching staff added: *“it’s more important for the students is to learn how to learn and how to deal with a difficult problem than what they actually understood about the problem and how they solve the problem.”*

Critical pedagogy recognizes that new pedagogical possibilities do not have one methodology that would work for all (Degener, 2001), but universities should allow to interrogate existing ones and explore new ones (Couch, 2017). One significant possibility here is providing the necessary student-centred learning environment, so that other students can attune the elements to fit into their learning context (Damşa & Lange, 2019).

### ***Student-Faculty Partnership***

The most important finding of this study is the opportunity of different forms of partnerships and collaborations across different actors, including students, professors, and non-academic actors. One of the most striking forms is the possibility of a partnership between the student(s) and the faculty, as supported by Design for Society's ambitions. In different parts of the world, the concept of student-as-partners is discussed widely and practiced in a range of different forms and application areas (Bovill et al., 2014; Felten et al., 2014), for example Collaboratory in the University of Bergen (The Collaboratory, 2018), CEMUS in the University of Uppsala (Hald, 2011), in the Bryn Mawr University in USA (Cook-Sather, 2014), in the University of Otago in New Zealand (Shephard et al., 2017), in Australia (Green, 2019; Matthews et al., 2018), in the University of Lincoln (Neary, 2013) and many other numerous universities. There is also a new journal dedicated solely to student-as-partners (International Journal of Students as Partners), a summer institute as well as a practitioner journal (Matthews et al., 2018) and numerous case studies from all over the world (Higher Education Academy, 2014).

While student-faculty partnerships can be perceived as uncomfortable, troublesome and even threatening, when legitimized and supported, such a partnership can be transformative and generative (Burke, 2013; Cook-Sather, 2014) and indeed may help NMBU enact their mission and reach their goals. Various benefits have been conceptualized and exemplified, including but not limited to an increased awareness on roles and student's agency, an enhanced sense of confidence, increased engagement, acquiring transferable skills, increased understanding of responsibility and autonomy, and an effective and deep learning, focusing on its transformative and generative potential (Burke, 2013; Cook-Sather, 2010; Felten et al., 2014; Matthews et al., 2018).

Administrators that I spoke to had expressed concern in terms of which students to partner up with, which I found as a common challenge pronounced in literature. While I find concerns from the administrators real and important, I believe Bovill's (2014) recommendations for determining clear criteria for selecting students as partners, and starting small and manageable are very practical and realistic. The authors also draw attention to understanding the implications of choosing students and also, not choosing.

Research implies that a very important step to take in an attempt to establish student-faculty partnership in the future would be "a widespread appreciation and legitimization of this student expertise" (Burke, 2013, p. 4). One Nordic example of student-faculty partnership comes from the University of Bergen, who promotes a model in which they hire two Course Coordinators to "plan, organise and facilitate the course together with an interdisciplinary academic committee" for their initiative 'The Collaboratory' (The Collaboratory, 2018).

**Whole-class approach:** Student-faculty partnerships have an uncustomary orientation, but they can be flexible in practice, tailored to the particular context, and aligned with the higher institution's goals (Felten et al., 2014). Bovill & Bulley's (2011) ladder of student participation can inform about the various forms of partnership (please see Figure 2). For example, having been engaged in such a role, one of the Course Coordinators suggested that these responsibilities and duties might be rotational amongst students and even other actors, or divided up between different actors. This suggestion is in line with Bovill's (2019) research with regards to a co-creation approach using a whole-class approach, resulting in stronger community building and effective learning, while requiring an adaptation of democratic, open, dialogue-based and collaborative pedagogic approaches, which may be a learning curve for some teachers. This might also relieve stress from a particular set of students but also create confusion around the duties that must oversee the entire project.

**Hackathons:** Faculty members can be invited to identify areas in their existing curriculum and pedagogical approach (Cook-Sather, 2014) and students can work to improve these areas, and new forms of collaborations might be born. Such an event may provide a thoughtful and energetic entry into student-faculty partnerships.

**Bring your own case:** As many have noted, relevance and sense of ownership is very important in order to connect the student to the work they are doing, which is also a foundational principle in student-centred learning (Barab & Duffy, 2012; Damşa & Lange, 2019). According to my findings, education must consider student's learning interests and find a way to connect with their social realities for a bigger impact. This recommendation is based on this understanding, that course work can be more aligned with students' social situations. In terms of the recommendations I received from students, case briefs need to be developed in concordance with students and community members, rather than simply being developed by faculty and served to students. Another way to go about is for students to bring in their own case, most likely the extracurricular activities they are engaged with during their spare time. Taking a partnership focus, I can imagine encouraging student societies to use the special syllabus mechanism, work on their cause and develop projects, and earn credits in return. Finally, this can become an ideal but also realistic partnership between the university and student societies with a low threshold, since the project idea and community aspects are already established. I can imagine various benefits for this partnership. Better leadership of student societies, more engaged student bodies, more investment and a deeper, empathic and political connection to the cause, and an increased sense of responsibility, are the likely outcomes, as it occurred for us Course Coordinators, as there is a reward at the end of the process in terms of earning credits. To me, this is the embodiment of students working with their hands, head and heart.

### **Utilising student-faculty partnership to implement student-centred learning environments:**

Research has been exploring varying roles of students in faculty partnerships, which inform student accountability and legitimacy as well as student expertise (Bovill et al., 2011; Burke, 2013; Cook-Sather, 2014; Owen & Dunne, 2013). While student-centred learning focuses on the student bearing the role of a learner, student-faculty partnerships nurture empowered student roles that embody more than being a learner (Vesterinen et al., 2017). As explained in the

chapters before, empowered student roles pose various advantages, not only to the student but also to the faculty (Felten et al., 2014), and thus serves as a possibility to be considered in the future. Design for Society's experience as a student-initiated and student-driven course can inform how an empowered student role helped to create a student-centred learning environment as a partner to the faculty. Below I want to draw attention to some advantages, which I believe can challenge the assumptions about students' capacity and maturity to enact an interdisciplinary student-driven learning environment, as I learned from the case of Design for Society and become a convincing possibility.

*Student perspective expertise:* First of all, our positionality as students gave us an advantage due to the sheer fact that we are students ourselves. Thanks to our student positionality, we could engage in dialogue with other students in spheres outside of the university, and personally relate to the barriers to meaningful, creative and engaged learning processes and windows of opportunities in a shared domain. The student perspective also allowed us to feel empathy and responsibility over other student peers and stand in solidarity. I aim to touch upon these issues in sections below, in a dispersed fashion. Our similar experiences are similar to Burke (2013), who was employed as a student-consultant in her own institution. Burke (2013, p. 2) unpacks the question of legitimacy of student partners in her paper, and asserts that "in order to create a reciprocal learning experience in mixed-role partnerships, it is necessary for both sides to be seen as having valuable abilities and perspectives that the other can learn from and move towards".

One valuable perspective that can mobilise the concept of student-as-partner is how as students we could relate to each other socially as part of student life. In their report for NIFU, Nerland and Prøitz (2018, p. 19) direct the question "how teachers can account for, and support, learning processes that take place in social spaces beyond the course settings". We, as Course Coordinators, were in direct communication with students over Facebook, sharing resources, cases, and opinion pieces and constantly checking in with student participants in terms of their advancement as a group and their individual sense making. We utilised digital platforms for a more efficient collaboration. Being student peers, we occupied the same positionality as them in the academic project, which allowed us to discuss course matters over coffee, meals and beer without intimidation or hesitation despite our differences. Our intention to do this was to enhance our abilities to facilitate an effective, creative and resourceful learning environment, where the distance between study and daily life narrows as we seek for relevance of our academic inquiry in the real world out there. Every session, we engaged in dialogue, checking in, doing reflections and querying what else student participants wanted to learn and how, in order to bring it to them. I did not have this in my studies; therefore I wanted to put that in the course we designed. Felten et al. (2014) assert that faculty develops a better understanding of student experiences and how to respond accordingly.

The research of Zimmerman (2000, p. 87) argues that student's agency is associated with the student's judgement about their capacity because "the more capable students judge themselves to be, the more challenging the goals they embrace". Therefore, instead of discouraging the student perspective, it is essential to encourage the student perspective and acknowledge their capacities in order to build agency and nurturing the students described in the university's strategy document. Overall, my findings indicate that student expertise is valuable and should

not be under-recognized. Potentially empowering students to collaborate with faculty can offer possibilities that might be beyond the scope of academic staff's capabilities. Partnering up with students brings the advantage for understanding what is happening in the student world and what is missing in that reality.

Confidence, agency, transferable skills: Student-as-partner roles are argued to build confidence, increase awareness, and hence develop agency and transferable skills (Burke, 2013; Cook-Sather, 2010; Felten et al., 2014; Matthews et al., 2018). Learning from the Design for Society case, assuming a boundary-crossing role to drive an educational project resulted in the enhancement of these qualities in the course coordinators, including myself (Bovill et al., 2014). One Course Coordinator explained the benefits as:

I think at the end of it I feel incredibly capable of trusting my instinct, in my intellect because at the university I had been trained to essentially do research, and in my bachelor education, it was merely accomplishing tasks. There wasn't any expectation or responsibility that I take ownership or initiate such an original project like this. Because personally, it made me believe that I can walk into a room with anybody who is a professional in a certain field and be able to have a conversation with them or to contribute something that would be of value to them.

Striking about these insights is not only the student's belief in their capacity and confidence and the victory of delivering a project that levels the student with any other professional, but also of accomplishing something of value that was not expected from them at all in the first place. Included in this student's learning are transferable skills that emerged out of the role Course Coordinator:

Skills for project development and management are what I hadn't been exposed to before. I hadn't gotten that in my professional experiences or at the university. So having an understanding of about, for example how to work with a communication platform, collective database that functions and is well organised, regular meetings, notes you know, the list goes on, teamwork, visioning, hindering and supporting forces. And those are skills that you get from the agroecology program, but to actually do them in some form or other, I think that adds an incredible amount to my own personal development in terms of my capabilities.

NMBU is supportive of building and developing such skills in their strategy document, as well as many other scholars around the world who argue for the role of education for nurturing these skills, described in detail in this study. In this sense, student roles that exceed the role of learner might provide a pathway for developing such skills in university.

Standing in solidarity with other student groups: What I really enjoyed in this experience was a freedom we were given to design the deliverables and the means to organise the events we did. I am thankful for the budget we were given to put together Design for Society. It enabled us to do what we wished. Yet, it did at the expense of burn out and resentment which almost caused the collapse of our group of three. If we were not a group of three, it would not be possible. Thanks to our high level of engagement, we were immediately surrounded by other student organisations and students, who wanted to make an impact through various other extracurricular activities. Their drive and will to collaborate uplifted our spirits. We interacted through acts of student activism, workshops, deep-dives, movie screenings and so many other

ways, leading to the building of a community of fire-soul students because we were united in a common vision. We were engaged in critical thinking, dialogue and action. Standing in solidarity in each other's causes, we nurtured a culture and environment of support, sympathy and encouragement. Overall, this finding indicates that nurturing student engagement by giving them more responsibility and accountability, and in turn fostering them to engage in high goal-setting activities may have a ripple effect in terms of social sustainability in the campus environment. The experience that emerges through such engagement might turn into a life-long learning contributing in a student's non-academic identity, as it did for me.

*Dialogue and mentorship:* The interviewees discussed how the Course Coordinator role was critical in terms of managing the inquiry throughout the semester. Design for Society utilised Inquiry Based Learning in its pedagogy, which is characterized by taking into its focus students' active investigative work to seek knowledge, as a strong form of student-centred learning approach (Aditomo, Goodyear, Bliuc, & Ellis, 2013; Damşa et al., 2015). According to this, learning practices are driven by self-directed, open-ended inquiry. Key to creating student centered learning environments is mentoring students during inquiry especially when they are 'overwhelmed by the complexity of options available to see what steps are relevant and productive and make effective decisions.' (Quintana et al 2006, p. 359 as cited in (Damşa & Lange, 2019). During the semester, situating oneself in the big picture and following a framework was necessary to overcome the decision-fatigue. That is why the student participants and community partners appreciated the role of Course Coordinator for overseeing the whole system and directing it strategically.

It was kind of like mentors. I'd say, we had these different challenges that we faced during the course. And so we brought them up with you, we discussed it with you, you gave us some feedback. You said okay, what if we try this approach, how to do it this way or as a new way of thinking about it? What if, how can you try to use this to implement sustainability, for example? That's..it was kind of, it was a facilitation, definitely. But in a way, of mentorship.

One participant specifically talked about how we liaised and coordinated many different activities. As Course Coordinators, our responsibility was designing and organizing each session, and we brought in very distinct guest speakers to the classroom, who introduced us to tools, such as giga-mapping, human-centered design, digital story, among others. Student participants assessed the role to be necessary as all the moving parts of the course was taken care of on behalf of them, in line with their learning interests and needs:

To me, it seemed like you've filled in the role of keeping the unit afloat and ensuring that kind of all parties were happy. In a way that made us the students happy that we got the different approaches to design thinking and solving our complex problems. But at the same time keeping the faculty members happy that we're watching over this unit.

The above statements also hint of mentorship features of the role and how mentorship and facilitation helped the students take direction and consider different approaches and perspectives. Students' accounts point out that mentorship is significant in managing inquiry because self-directed inquiry relies on the student making strategic decisions, and may stretch the student's capacity too far (Damşa et al., 2015). The accounts of student participants reveal

that both of the case works made student participants feel exactly this way. These strategic decisions included determining the steps to take and select direction, tackling the open-ended nature of inquiry and narrowing down the focus, establishing the resources to use and how to use them (tools, theory and methods), and reflecting onto their advancement in casework, their role within the interdisciplinary group and self-development, among others, as acknowledged by Nerland & Prøitz (2018). By engaging in social spheres, we operationalized 'feeding forward', which is a concept in literature that suggests regular feedback can further support students' learning process (Damşa & Lange 2019). As we have learned from this case, being a student does not have to limit one's capacity to relate to other students, resonate with their issues and offer mentorship. Adding onto the discussion in the previous chapter, I can comment that students can offer a more genuine understanding to the student's situation.

As students, we were able to forge this approach due to our expertise at being students at NMBU. I knew what was lacking in the classroom environment due to my immediate experiences and we could relate to each other's needs because we were such a diverse group of students from many different disciplines. In my earlier studies, I was mostly dismayed by my professors' lack of feedback and guidance. I can't help myself but think how I would greatly benefit from attention and mentoring from my professors. As a result, I needed this component to be a significant part of the learning process at Design for Society.

As Course Coordinators we were not only engaged in mentorship, but we also cared greatly for feedback. One student related to this as: *"it was good because you were all giving a little bit of lectures and, and feedback sessions. So that part I felt worked really well."* Labelled as 'the Achilles heel of quality' in higher education', forms of feedback are vital for establishing and supporting student learning (Damşa & Lange, 2019). Even though some teachers and administrators are uncomfortable with the idea, this is what we tried to operationalize in Design for Society when we got in control of the pedagogical approaches and design of the learning environment: bring in mentorship, guidance, feedback and overall care for all participants. Students' accounts and my experience in both PAE302 and Design for Society, reveal that our efforts followed through.

*Exercising autonomy:* With regards to the extent of intervention from a course responsible, participants shared differing views. Some of them wanted more guiding structures offered by an academic who oversees the entire project. Some others rejected a teacher being present in the environment and were content with the autonomy, which was fuelled by grassroots leaders and directed by students. These mixed views point out to the fine line between supervising through structures and mentoring, and intervention. One of the staff related to how support and autonomy can be balanced:

I think you [Design for Society] should be treated more also like a master thesis, you know, that the you have a supervisor but the supervisor is not telling you what to do you have to define it yourself, but he she comes in and assist you whenever necessary to push that to the next level. Right. I think you need that, you know, years of experience person.

Student-centred approaches propose that a guiding structure can make the learning process sustainable (Damşa & Lange, 2019). As Course Coordinators, we used the design-thinking framework as a guiding structure. According to research, facilitation is a skill that can be



developed with the suitable pedagogical design (Lieblein, Arvid Breland, Salomonsson, Sriskandarajah, & Francis, 2008), and having learned a clear framework at PAE302 to develop this skill empowered us to utilise it. The qualifications I gained through the agroecology course are described as transferrable by Lieblein et al. (2004), which mean these skills are not confined to agroecology and can be practiced in other aspects of life. So we had belief in ourselves as competent deliverers of this structure. Furthermore, the learning outcomes of the Agroecology programme enable us to be competent facilitators and communicators. If we can justify our capacity to facilitate our student peers' learning process, then why shouldn't we? This can also help to overcome concerns over eligibility. NMBU's learning philosophy agrees with this approach: "Students are an important learning resource for each other and actively participate in the teaching of their peers" (Dyb, 2016).

Then, what kind of responsibility can students assume in each other's learning? While this is a very big question, to my end, I engaged in teaching what I successfully learned from PAE302 and also facilitated the accessibility and availability of knowledge and tools that would enhance the student's understanding of their case. This was also intended to improve their process and group dynamics to advance in their casework, while allowing a lot of space for creativity, inquiry, even embracing uncertainty, but providing mentorship. An underlying orientation of Design for Society is the idea to open up new spaces of possibility for learning against the fallacy of 'banking model of education' and facilitate new pathways and new roles (Couch, 2017). I find the below statement illustrative of the fine balance between autonomy and guidance:

Because they [Course Coordinators] gave us the freedom to pursue the things we wanted, but at the same time, they provided us with the tools to do so and to seek an end product. So it is definitely set a benchmark for me in that regard.

Being active in one's learning require the student to take more responsibility in their own learning process, as assumed in student-centred learning (Damşa & Lange, 2019; O'Neill & McMahan, 2005; Wright, 2011). The autonomy, as a guiding principle in student-centred learning, formed a benchmark for this student and increased awareness toward learning and teaching approaches, assessment modes and classroom dynamics in other classes. Power of choice is essential in reinforcing the centrality of the student's role because it assigns agency to the student for what takes place in the learning process (Damşa & Lange, 2019; Lea, Stephenson, & Troy, 2003; O'Neill & McMahan, 2005).

Freire (1998, p. 30) drew attention that "to teach is not to transfer knowledge but to create the possibilities for the production or construction of knowledge". It was in his vision that the conditions in a learning environment impact the quality and the way learning emerges. Inside the classroom, we created a safe space being only students and facilitators, which was not continuously assessed by an authority figure, and according to what student participants say, in this environment, challenging discussions, creative interactions, and a culture of criticality and reflection was born. According to the students that I interviewed, it made total sense as everybody wanted to be there, because everyone attended voluntarily. I found out that such a classroom environment requires a conscious effort to create the safe space for everyone to bring forward their thoughts and their contribution and challenged by others without feeling

threatened, the type of engagement SCL takes into its core (Damşa & Lange, 2019). An attending faculty member also resonated with this observation:

Discussion was lively, challenging environment - different opinions heard and clashing and discussed, so refreshing. Some questions were challenging, it was not always easy to give an answer or understand the point of view. We were looking at the same thing, with the same technique, but from very different perspectives. So it was also enriching for me.

A learning environment does not have to have an authority figure to endorse student-centred learning approaches. As students, we might have accomplished building such an environment.

*Different modes of assessment:* Rather than embodying premises upheld by the banking model of education (Freire, 1993), we espoused the notion noted by Couch (2017, p. 139) that “if multiple ‘ways of knowing’ and multiple sources of knowledge are valued, then multiple methods of assessment must also be considered.” Following this, as Course Coordinators, we designed three deliverables consisting of a digital story, a stakeholder document, and presenting at a final event. These deliverables represent the outcomes of the course on three tiers: on a personal level (digital story), group level (stakeholder document) and course level (final event). To proceed with the final deliverables, the student teams were required to write blog-posts (please see Appendix 10 for more details) and deliver a mid-semester review with the attendance of stakeholders. The blog is still available on NMBU’s website ([blogg.nmbu.no/designforsociety](http://blogg.nmbu.no/designforsociety)).

Student expressed that engaging in these modes of assessment was meaningful to them, and this is in concordance with student-centred learning theory (Damşa & Lange, 2019). Especially, as a result of my own experience, the third deliverable was the most meaningful as the intention was to design a public event to disseminate our experiences with regards to making this course, and share findings of the caseworks. The event was titled ‘Breaking Down the Silos’ in alignment with the objectives of the course and carried a provocative message in itself. We chose the form of an interactive panel to host two panels, one focusing on Transdisciplinarity and the other on University as an Arena for Societal Change, and three presentations, one from each student team and one from Course Coordinators (see Figure 3). The panel discussions and the student team presentations aimed to create a dialogue about these two burning issues that Design for Society took into its focus. The autonomy to voice our learnings in the form of an interactive event, in which people voluntarily participated, was very rewarding and gave me a sensation of what we



Figure 3: Poster for final event

did was worthwhile after all. Additionally, the panel offered a platform to deliver in depth messages, entangled with our purpose and advocacy for student activism and student voice. This way, our experience and findings became a public matter, rather than staying confined within the boundaries of the course.

### **3.1.4 Synthesis**

Today, interdisciplinarity is considered indispensable to tackle global challenges, even though we work on local levels in local settings (Holley, 2017). As understood from the case of Design for Society, the institutional will to support interdisciplinary work is very significant, because it can act as a springboard for interdisciplinary initiatives to emerge and flourish. Even though the will to work interdisciplinary, collaboratively and towards building skills and competencies intended to solve global sustainability crises is important and meaningful to include as goals in institutional documents, there is no established pedagogic strategy to create an educational momentum out of this will. For example, there is no mention of student-centred learning in NMBU's quality assurance or strategy document as an indicator for quality in learning. In this case, Design for Society might serve as an example of how to translate institutional statements into praxis.

Yet, the environment which embraces such progressive intentions as goals is key to creating and sustaining student-centred learning, which promotes "a culture of mutual respect and collaboration in pursuit of knowledge among members of the academic community" (Klemenčič, 2017, p. 73). Even though there are barriers to the implementation of interdisciplinary work across faculties and in the classroom environment, the case Design for Society draws attention to when and where to expect limitations. To that end, the special syllabus mechanism salvaged the situation due to its versatility to bring together faculties and assemble a group of students for a learning project. Yet, this mechanism requires not only visibility but also guidance for more effective utilisation. Finally, structures like the special syllabus must be in place, and also visible, in order to make projects like Design for Society come to life without delay, because students' timespan in higher education is usually very limited. Additionally, as understood from students' perspectives, in the presence of student motivation to utilise such mechanisms to make an impact and exercise agency, an interdisciplinary student-driven education can be established at NMBU. According to my analysis, student motivation can be the driving force and outcome of establishing meaningful assignments and modes of assessments, pedagogic models that empower students with transferable skills, responsibility and a moral purpose, and new ways of thinking required by sustainability education. Overall, I argue that these institutional, structural and motivational factors have great importance in building interdisciplinary student-driven courses in any context in a sustainable, rigorous and rewarding way.

My analysis has also exposed the hindering elements for this pedagogic pathway. I found out that fragmentation is experienced not only in terms of disciplinary boundaries but there was also a cultural and a spatial separation which led to little cross-over among students from different faculties, across different roles in the university, in terms of spatial understandings, and the lack of an established relationship between the university and the town (Ås), or society in general, despite its long history. This fragmentation constantly worked against the interdisciplinary nature and the inquiry-based learning pedagogical model of Design for Society and set an

obstacle for Design for Society to accomplish its goals. Trying to work around these separations, the lack of guidance and incentives has made it even more difficult to kick-off this project and bring it to the next level. As students who wanted to drive their own course, I found that there is no mechanism in place to access pedagogical or structural guidance and support. Finally, the lack of support led to serious internal negotiations, almost resulting in Design for Society to collapse. For some, running such a project could have been impossible, in the lack of support and absence of compensation for efforts. Lastly, for interdisciplinary student-driven education to have legitimization and accountability, assumptions and concerns about the capability and capacity of the student is found as a major hindrance. Unless these reservations are addressed, none of the efforts directed at enhancing the supporting forces and eliminating the hindering forces may contribute in promoting interdisciplinary student-driven education.

Reflecting onto my findings, I argue that Design for Society attempted to contribute in an interdisciplinary learning environment where students worked on real cases by choice, and got equipped with transferable skills with increased engagement. This might indicate how Design for Society made an effort in creating a student-centred learning environment (Damşa & Lange, 2019), while being driven by students. In their research, Damşa & Lange (2019) highlight that insights from the design of a student-centred learning environment can improve teaching and learning practices and students' experiences, roles and participation in pedagogical practices. Therefore, investigating the supporting and hindering forces in this case is significant to inform other pedagogical practices in the future.

Consequently, student-centred pedagogies are considered as a guiding principle in EU higher education policy and many scholars all around the world as a response to the static and archaic model of banking education (Klemenčič, 2017). Nerland & Prøitz (2018) recognize in their work that there is not one methodology to satisfy all. This is why curricula do not emerge ready-made, and that their continued existence is not a given after their implementation. Therefore, decisions based on curriculum material and learning strategy should depend on students' learning interest and needs in order to evoke agency (Klemenčič, 2017).

Critical pedagogy assigns responsibility to the university to empower students so they can turn their passions into meaningful work, in order to transform the society and the world (Giroux, 2010), just like why we created Design for Society. Giroux's (2010) argument explains why I further emphasize the Need for an Enabling Ecosystem and Student-Faculty Partnerships as possibilities that the university can consider working on in the future.

Student solidarity and student mentorship definitely narrowed the traditional gap that would have been between the teacher and student. Overall, attending to students' experiences and perspectives and embracing students as partners and change agents in explorations of pedagogical practice might constitute student as informed citizens and social agents, as opposed to the concept of 'banking education'.

According to my analysis, implementing these elements can result in flourishing interdisciplinary student-driven initiatives. Surely it is not a simple and straightforward task, but it can contribute in create thing environment in which student-centred learning can thrive and student-as-

partners can flourish and sustain, as we learn from the case of Design for Society. There are many opportunities in student-driven sustainability education that might nurture the graduate NMBU is looking forward to educate (Herranen et al., 2018).

Conducting the first student-driven interdisciplinary course at NMBU, we stressed the importance of the learning environment by redesigning, shaping and bringing value back into education. We attempted to establish groundwork for an innovative role, as designers and drivers of our education. Doing so, we challenged the role of the student in the university and reinvented it by designing and coordinating our own course as 'actors with multiple roles'. It stemmed from wanting to destroy the traditional barriers between the student and teacher (please see Abstract for ACRE19 Conference in Appendix 3), simply because of not wanting to be constrained by assumptions and concerns about our capabilities and capacities. This led us to reinvent the student role by bringing in our values, learning interests and needs. While the form of partnership between the student and faculty may not necessarily follow this example, the case is significant for informing a possibility in establishing interdisciplinary student-driven education.

Permitting experimental spaces, establishing an advisory board, creating an interconnecting institutional framework and drawing from novel methodologies can help build a learning environment for a renewed pedagogy (Nyström, 2011). An example is CEMUS, a student-initiated, transdisciplinary centre at Uppsala University and Swedish University of Agricultural Sciences, which has been thriving as "a successful experiment in student empowerment, and has helped to put important sustainability issues—largely defined by the students—onto the agenda of the university" (Nyström, 2011, p. 11). Certainly, such initiatives are becoming widespread in the international educational arena, especially to put forth the blueprint for dealing with daunting sustainability challenges. Soon there might be a greater push for NMBU to endorse the students' will to drive their own education and organise it in an interdisciplinary way. Hopefully then we can reimagine the university in more transformative, generative and creative ways.

I come to an understanding that most of the constraints put forward in this section can be minimized or even eliminated by the university, and supporting forces can be enhanced and possibilities might be implemented. Assuming other students might walk the same path at NMBU and elsewhere, this is an account of what kind of hindrances there are and where they can find the supporting elements and the possibilities that have been imagined. Overall, these findings can inform the design of a learning environment, which takes student centrality and student-faculty partnership into its focus.

### **3.2 LIMITATIONS AND METHODOLOGICAL REFLECTIONS**

Number of people reached and the number of people who were available for an interview is the primary limitation of this study. I have had the opportunity to reach out to students, student organisations, teaching staff and administration, and other institutions, yet I had to leave out valuable contributions from other people who I am sure have opinions and insights into the subject matter given the limited amount of time. Since my study is based on the unique perceptions and experiences of the people, my analysis could have been richer if I was able to

interview more participants. I believe the quality of my research is not compromised by my ability of outreach, since “credibility depends less on sample size than on the richness of the information gathered and on the analytical abilities of the researcher” (Patton, 2014, p.67).

My project is woven around an Action Research approach. Action research’s iterative cycles are directed at improving situations by observing, analysing and reflecting on the processes and outcomes of the interventions, and then planning and implementing again in cycles (McNiff, 2014). Design for Society could be the object of a more comprehensive and iterative Action Research project, but the timespan did not allow it to become one.

Additionally, I was an integral part of the creation and operationalization of this Action Research project, which positioned me as the researcher and the researched at the same time. I have endorsed different roles throughout the study, going back and forth between an observer, participant, researcher, and activist. Consequently, I found it essential to develop an understanding of the typologies so as a researcher I could clarify and conceptualise my roles, tasks, goals and boundaries in order to overcome this.

Surely incorporating the study of myself into this research was challenging. According to McNiff (2014), credibility is the biggest test when researchers study their own domains. In order to surpass this, I tried to demonstrate my findings transparently, switching between different roles and using different lenses. I also tried to demonstrate my findings holistically using different sources of data. I confronted my deep involvement by continuously reflecting onto and conceptualizing my opinions, values and the relational issues critically and thoughtfully (Levin, 2012). While I tried to confront and remove my biases through iterations of writing, reading, re-writing and re-reading, I strived to base my arguments on reasoning. Doing so, I inhabited Richardson's (2000) assertion that writing is the validation of one’s knowing. To use my writing as a tool for reflection and validation, I engaged with a critical autoethnography approach, which lended me a critical but also rigorous lens when discussing my lived experience. This allowed my data to be based on cycles of reflection and support it with theory (Lynch & Kuntz, 2019). Yet, having to comply by the rigid structure of academic writing resulted in a compromise on my authentic writing style.

Another limitation is about language. NMBU’s evaluation and quality reports are disseminated through their website in Norwegian. Even though I am not very proficient in the Norwegian language, I was able to read and understand related parts. Yet, my ability to reach to all university documents and my partial competence in the Norwegian language might have impacted my ability to cover all information available.

Finally, there are practical methodological considerations to be taken into account. My research is further impacted by the fact that I come from a very different cultural background, having studied and spent my working life in a very different context in Turkey. Cohen (2007) acknowledge that research is influenced by the researcher’s own personal history, biography, gender, social class, race and ethnicity. I believe these elements make my point of view quite distinct from those researchers situated either in the West or in Turkey. While I do not see this as a limitation, I find it important to reflect in this section. I am aware of my

positionality and my point of view, and I strive to integrate that awareness at each step of my research. Certainly my thesis employs an intrinsically student perspective. Therefore, this text by no means provides an exhaustive review of all perspectives at NMBU in the present day.

## 4 EPILOGUE

### **What happens when an agroecologist takes her newly found knowledge outside of the classroom?**

I believe in learning if you are curious, open minded and an effective thinker. I came here [NMBU] by instilling myself to 'unlearn' in the serving of new and better relearning. I am grateful to be provided with guidelines and the framework so that I create the learning environment for myself, learn to learn by myself, attain outcomes and meanwhile document the process. I am striving to be an agent of change; thus, having the awareness of my own advancement has a great significance. I aimed to make the most out of this educational opportunity. (Learner document, Idil Akdos, December 2017)

My biggest take aways from PAE302 were the understanding of how to approach a system to understand and improve it, and my self-discovery of my identity being a 'change agent'. I think the negotiation with the extent of my empower as a change agent and what I will do with my empowered self started right after this semester. To enact my empowerment, the strongest tools I acquired were the agroecology framework, which I associate with Design Thinking, and the agroecological vision, which has been typically affiliated with systems approach (Bell & Bellon, 2018). I administered Design Thinking as a gateway to participatory, human-centred, creative and innovative thinking with a very clear understanding of process. I found systems tools necessary because the issues we investigate are not only complex, but also involve multiple relationships and human decision-making. If having a holistic view of sustainability issues necessitates to work interdisciplinary and to adopt multiple perspectives in systems investigation (Rickerl & Francis, 2004), then why other students in the Norwegian University of *Life Sciences* were not taught systems approach using critical pedagogical practices? What can I, as an Agroecology student do about it? Could I apply my education in my institution to make sure other students from different disciplines will become collaborators to me for facilitating systemic change in the future?

At this point I would like to recall Lewin's (1948) old credo to mind: "If you want to understand something, try to change it." I was asking the questions above and therefore I turned my attention toward the most influential institution, my own university, to question its relevance to address these crises, because "sustainability education should be developed towards a more transformative, learner-driven education" (Herranen et al., 2018, p. 1).

And I wasn't the only one thinking like this. My friends, Tony and Abel had the same vision. I contributed in the critical discussions they were having and inserted myself into the struggles they had been encountering. I made myself a part of the group. Our meetings brought upon the agreement that the university was siloed in so many ways as we experience it. They wanted to influence our university to take into its center sustainability transition and SDGs as noted by many (Cortese, 2003; Herranen et al., 2018; Sterling, 2016). For me, this vision meant that I

enacted my goals that brought me to Norway in the first place: building community. Ironically, in excerpt below, I envision that I will take the necessary steps to make sure I have collaborators equipped with the same tools, competencies and mind-sets as I got in my programme by applying what I learned:

My learnings are certainly not limited to what this document contains. I got a taste of what agroecology can offer and this only propels me to work more with it! Finishing this course, I am equipped with some tools that are applicable to other fields of study and work. I rejoice in what I have learned and I will start spreading it, as soon as this course finishes! (Learner document, Idil Akdos, December 2017)

My fellow Course Coordinators were as driven as me to do something about it, not just criticise. I was very lucky to be in this group of three, who continued alongside me despite all the hindrances. My learning project was deeply affected by their confidence in my skills, knowledge and reasoning. They were my source of theoretical, emotional, ideological and social support the entire time. Working in unison added greatly onto my personal development. Being part of a group helped me feel invincible against the struggles we went through and eased the level of responsibility because we could delegate within the group. Meanwhile, this solidarity materialized a significant improvement in my knowledge for various types of theory, from critical pedagogy to emergent methodologies, as well as grounding my capabilities for facilitation, public speech, advocacy and activism. I got empowered to become a leader, a project manager and a good team member.

Not only I am very proud of myself and my student peers for accomplishing our goals, but as one of the Course Coordinators said, *"for exceeding our goals"*. Everyone walked away with a unique experience and interesting learnings, and a good feeling about the impact they created. I also find myself convinced that we, as Course Coordinators made an impact in our own circles and institution. My notes from my reflexive journal testify this:

Transformation initially takes place within one's own circle. Through this course, we witnessed the adoption and circulation of the ideas that we had been discussing amongst ourselves just several months ago. Today the students are discussing these ideas and stimulating the people in their own social circles as a result of their engagement. Just like Ingrid said, change happens in small conversations; plenary meeting are just for show (Reflection log, Idil Akdos, March 26, 2019).

Small conversations created this unique, transformative and impactful project. Imagine all the other small conversations going on between other students, thousands of them. Because of the crushing stigma of being just a student, I deeply sadden when I think of all those other opportunities that are lost each year as creative and innovative student ideas wither and expire, getting lost and confused in an institution of resources and possibilities. This is how I came to the decision to write my thesis about Design for Society.

As someone that is deeply connected to societal issues, I wrestled with myself to choose my thesis topic. My criticality on this subject stems from being exceptionally passionate about it; from caring about it so much that you want to understand it, and then caring about it so much



more that you want to intervene and act on it, resonating with Giroux's (2013) work about becoming a social agent and a critical citizen. That is the reason I designed and drove Design for Society. As a note of my personal stake in this study, it made complete sense to me that I own my project from start to finish. I would get involved in the conception of an idea, and subsequently prepare, implement, evaluate, and document it upon completion. All of this was to ask bigger questions to the university just like we have been doing since we started being vocal about the grievances we had with universities' approach to education.

As I have said in the prologue, I have embarked on a journey to unlock my potential to be a change agent, or humbly a person who acts responsibly and confidently and inspires through her thoughts and actions. Even though I did not focus on food and farming systems with my thesis, I have ownership of my project in which I utilised my take aways from Agroecology. I believe that I exercised being the autonomous learner I became, creating the learning environment that serve me the best meanwhile facilitating a transition toward sustainable systems. I am glad I could use my skills in a transferable manner as a result of my education.

I follow the line of thought that Alana Mann (2019) conceptualises in her book *Voices and Participation in Global Food Politics*. I considered agroecology as a resistive epistemology which can instil empowerment and bottom-up agency, as a 'framing device' that is in dialogue with embedded in transformative social movements and processes (Mann, 2019). The power of agroecology in envisioning and building the 'desirable future' in a participatory way propelled me to be the central decision maker in my own educational journey and to be an essential part of the triad that formed Design for Society. Francis, Breland, Østergaard, Lieblein, & Morse (2012, p. 62) argue that this might be the "educational foundation for responsible action, related to education for sustainable development and its explicit focus on promoting competencies for change".

Concurring Anderson, Maughan, & Pimbert's (2019, p. 1) argument, through agroecology we can interrogate the underlying root causes that point out to norms, values and processes that "that frame and legitimize the purpose of knowledge, policies, organizations, technologies and practice". Indeed higher education institutions are governed by norms, values and teaching and learning processes that shape our identities and subsequently influence our capacity to exercise our agency and how we relate to one another, between students and teachers (Klemenčič, 2019), as we have seen from the case of Design for Society. Empowering through agroecology and my identity as an agroecologist, or 'change agent', or as I call myself 'student-as-designer', I pointed out to the norms, values and processes in my own institution that challenged my ability to design my own education but paradoxically, ended up empowering me.

## 5 CONCLUSION

The objective of this action research was to determine the supporting and hindering forces that act on interdisciplinary student-driven education, and to explore which possibilities might elevate such an educational approach. Using Design for Society as a case I identified that institutional, structural and motivational supporting factors are essential in establishing interdisciplinary student-driven education. Ironically, institutional, financial, structural and motivational factors were found inhibiting, yet Design for Society took place despite these constraints. This tells us that institutional, structural and motivational supporting factors can be crucial in bringing such student-driven initiatives into reality, even at the presence of limitations. Other higher education institutions can draw from these findings and assess their educational environment in terms of institutional, structural, financial and motivational elements. The various possibilities listed in the discussion indicate a need for an encompassing environment and partnership models that might further facilitate student-centred learning environments and nurture student-driven education.

I come to a conclusion that Design for Society implemented various elements of a student-centred learning environment in the classroom, but needed to invent an innovative role to build that environment. This role, namely Course Coordinators was found to resemble that of student-as-partner. Although this role was not found fit in terms of validation and quality purposes, the initiative and our motivation was highly praised. Through this intensive engagement I found about the presence of other students who want to design their own education, both in our own institution and elsewhere, like the ActSHEN network in the Nordic context (Vesterinen et al., 2017). Student voice, student engagement and student-faculty partnership literature is filled with inspiring examples (Owen & Dunne, 2013). These practice-based studies might provide insight into how to implement these approaches.

Traditional educational systems are characterised by their reductionist approach that fragment disciplines into silos, and constrain roles into their own domains. By studying the case Design for Society, I arrive at an understanding that breaking down the boundaries of disciplines is not enough on its own; we need to cross boundaries between the hierarchical, traditional and customary roles of students and teachers in the university as well. Overcoming these boundaries depends on building a collective vision and translating it into our practices. Universities can be a place where we not only reimagine but realize a new vision for the present. This vision should be built together and be translated into practice together, and not isolate imageries of students.

Let's imagine for a minute what that vision can look like from the perspective of a traditional student role. The confines of the traditional student identity does not allow for creative, imaginative and courageous educational possibilities. By reimagining the university and ourselves in Design for Society, we acted ourselves out of the customary, passive and conforming student role and assumed an innovative role, which clearly challenged the traditional norms of teaching and learning (Green, 2019). This role enabled the Course Coordinators, including myself, to acquire confidence in ways that formal curricula would not offer, allowed for a deepened and unique and transformative learning experience of project management, instilled an evolved sense of identity through setting higher goals for ourselves and by rebelling against ingrained

power structures. As a result, it led to a meaningful, creative and benchmark-setting classroom experience for 4 other students, who were engaged in active learning and felt an increased sense of responsibility, all in alignment with the said benefits of student-centred learning and student-as-partners (Bovill et al., 2014; Burke, 2013; Cook-Sather, 2014; Damşa & Lange, 2019; Felten et al., 2014; Wright, 2011). This non-conforming, autonomous and courageous belief in our own capacity allowed us to design our own education.

The intended outcome of the Design for Society project was to influence the university and non-academic actors about the rich possibilities of designing education in open, creative, courageous ways. As Course Coordinators of Design for Society, we feel we reached this outcome. An unexpected outcome was our embracing of the process without being fixated on any measurable, predetermined and tangible performance-related outputs. As a result, we built meaningful relationships, confidence, autonomy and respect because we saw learning as emergent.

As a conclusion, Design for Society responded to today's educational challenge by embracing a moral purpose to learning, nurturing inquiring attitudes and mind-sets and focusing on agencies needed to become responsible, confident and informed citizens that can identify and address the sustainability challenges (Cortese, 2003; Damşa & Lange, 2019; Giroux, 2013; Sterling, 2016), connecting the head, heart and the hand. Design for Society accomplished this through engaging in interdisciplinary education and empowering the students to step beyond customary roles while forming unlikely partnerships in a grassroots fashion.

This decade has seen many discussions around breaking down the disciplinary and positionality disconnect in higher education. Pedagogical approaches toward student-centred learning have become a standard. Meanwhile, as teachers' autonomy decreases and students' participation increases, new domains for partnerships are emerging. A new academic collaboration between the student and the university is evolving. The next decade will hopefully see universities attempting to narrow these emerging gaps.

Interdisciplinary student-driven education needs more understanding; new research might need to understand how to cope with these limiting factors and ways of enhancing supporting factors. More specific research to understand various forms pedagogical approaches of student-centred learning in the Nordic context might be necessary. As a result, corresponding to the change in pedagogical approaches, different types of student-faculty partnerships and empowered student roles can be explored through participatory research methods. Another challenge would be how to ensure the embeddedness and sustainability of such initiatives.

Larger problems and broader social forces comprise of local problems and local settings. This is why this study might make sense to students, educators and others around the world. Students are an excellent resource, with unbound imaginaries, skills and brilliant non-academic identities, and the norms around this role must be challenged! Otherwise, universities may no longer be the spaces of radical possibility (Earl, 2016; hooks, 1994).

As I see it, the university is the ideal the place to experiment, ask questions, negotiate and generate knowledge for society. I hope this thesis will draw the attention of students, academic staff and administrators. I also hope this thesis gives students the input, confidence and capacity to articulate their criticisms of the dominant culture, carry their bright ideas into fruition in democratic and participatory ways and as such transform their reality. Universities can be the ideal place to enable and empower students to be engaged with their own 'intellectual selves' (Clegg, 2011 as cited in Curaj, 2015). From here, they can create the conditions to develop effective and long-standing solutions in order to match the scale and complexity of the issues in the real world we are dealing with. We need this, because sustainability challenges require creative, active and committed individuals who question deeply embedded assumptions and norms and at the same time become reflective on their own role in society (Arvanitakis & Hornsby, 2016b; Cortese, 2003; Sterling, 2016).

If we don't start involving students, and, more importantly, acknowledging when they do make a contribution, students are just going to be turned off. When exactly are their opinions supposed to be good enough to listen to? They have to practice to gain confidence. (Quote in Cook-Sather, Bovill, & Felten (2014) as cited in (Burke, 2013)).

## REFERENCES

- Aditomo, A., Goodyear, P., Bliuc, A.-M., & Ellis, R. A. (2013). Inquiry-based learning in higher education: Principal forms, educational objectives, and disciplinary variations. *Studies in Higher Education, 38*(9), 1239–1258. <https://doi.org/10.1080/03075079.2011.616584>
- Anderson, C. R., Maughan, C., & Pimbert, M. P. (2019). Transformative agroecology learning in Europe: Building consciousness, skills and collective capacity for food sovereignty. *Agriculture and Human Values, 36*(3), 531–547. <https://doi.org/10.1007/s10460-018-9894-0>
- Armson, R. (2011). *Growing wings on the way systems thinking for messy situations*. Devon: Triarchy Press.
- Arvanitakis, J., & Hornsby, D. J. (2016a). Are Universities Redundant? In J. Arvanitakis & D. J. Hornsby (Eds.), *Universities, the Citizen Scholar and the Future of Higher Education* (pp. 7–20). [https://doi.org/10.1057/9781137538697\\_2](https://doi.org/10.1057/9781137538697_2)
- Arvanitakis, J., & Hornsby, D. J. (Eds.). (2016b). *Universities, the Citizen Scholar and the Future of Higher Education*. <https://doi.org/10.1057/9781137538697>
- Ashby, I., & Exter, M. (2019). Designing for Interdisciplinarity in Higher Education: Considerations for Instructional Designers. *TechTrends, 63*(2), 202–208. <https://doi.org/10.1007/s11528-018-0352-z>
- Ashwin, P., & McVitty, D. (2015). The Meanings of Student Engagement: Implications for Policies and Practices. In A. Curaj (Ed.), *The European Higher Education Area: Between critical reflections and future policies. 2: Part 2* (pp. 343–359). Cham: Springer.
- Barab, S. A., & Duffy, T. (2012). From Practice Fields to Communities of Practice. In D. Jonassen & S. Land (Eds.), *Theoretical Foundations of Learning Environments* (2nd ed., pp. 29–65). New York, NY: Routledge.
- Barnett, R., & Bengtson, S. S. E. (2018). Introduction: Considering the Thinking University. In S. S. E. Bengtson (Ed.), *The thinking university: A philosophical examination of thought and higher education* (pp. 1–12). New York, NY: Springer Berlin Heidelberg.
- Baxter, P., & Jack, S. (2008). Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. *The Qualitative Report, 13*(4), 544–559.
- Bell, M. M., & Bellon, S. (2018). Generalization without universalization: Towards an agroecology theory. *Agroecology and Sustainable Food Systems, 42*(6), 605–611. <https://doi.org/10.1080/21683565.2018.1432003>
- Bengtsson, M. (2016). How to plan and perform a qualitative study using content analysis. *NursingPlus Open, 2*, 8–14. <https://doi.org/10.1016/j.npls.2016.01.001>
- Bernard, H. R. (2006). *Research methods in anthropology: Qualitative and quantitative approaches* (4th ed). Lanham, MD: AltaMira Press.
- Bohórquez, Y. S. (2012). On Rethinking Our Classrooms: A Critical Pedagogy View. *HOW, 19*(1), 194–208.
- Bovill, C. (2019). Co-creation in learning and teaching: The case for a whole-class approach in higher education. *Higher Education*. <https://doi.org/10.1007/s10734-019-00453-w>
- Bovill, C., & Bulley, C. J. (2011). *A model of active student participation in curriculum design: Exploring desirability and possibility* (C. Rust, Ed.). Oxford Brookes University: Oxford Centre for Staff and Learning Development, Oxford.
- Bovill, C., Cook-Sather, A., & Felten, P. (2011). Students as co-creators of teaching approaches, course design, and curricula: Implications for academic developers. *International Journal for Academic Development, 16*(2), 133–145. <https://doi.org/10.1080/1360144X.2011.568690>
- Bovill, C., Felten, P., & Cook-Sather, A. (2014, June). *Engaging Students as Partners in Learning and Teaching (2): Practical guidance for academic staff and academic developers*. Presented at the Educational Development in a Changing World, Stockholm, Sweden.

- Burke, H. (2013). Legitimizing Student Expertise in Student-Faculty Partnerships. *Teaching and Learning Together in Higher Education*, (10), 1–6.
- Chattopadhyay, S. (2019). Infiltrating the Academy through (Anarcha-)Ecofeminist Pedagogies. *Capitalism Nature Socialism*, 30(1), 31–49. <https://doi.org/10.1080/10455752.2019.1574846>
- Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed). London ; New York: Routledge.
- Cook-Sather, A. (2010). Students as Learners and Teachers: Taking Responsibility, Transforming Education, and Redefining Accountability. *Curriculum Inquiry*, 40(4), 555–575. <https://doi.org/10.1111/j.1467-873X.2010.00501.x>
- Cook-Sather, A. (2014). Student-faculty partnership in explorations of pedagogical practice: A threshold concept in academic development. *International Journal for Academic Development*, 19(3), 186–198. <https://doi.org/10.1080/1360144X.2013.805694>
- Cortese, A. D. (2003). The Critical Role of Higher Education in Creating a Sustainable Future. *Planning of Higher Education*, 15–22.
- Couch, J. (2017). On the borders of Pedagogy: Implementing a critical pedagogy for students on the Thai Burma Border. *Australian Journal of Adult Learning*, 57(1), 126–146.
- Curaj, A. (Ed.). (2015). *The European Higher Education Area: Between critical reflections and future policies. 2: Part 2*. Cham: Springer.
- Damşa, C., & Lange, T. de. (2019). Student-centred learning environments in higher education: From conceptualization to design. *Uniped*, 42(01), 9–26. <https://doi.org/10.18261/issn.1893-8981-2019-01-02>
- Damşa, C., Lange, T. de, & Elken, M. (2015). *Quality in Norwegian Higher Education. A review of research on aspects affecting student learning* (Review No. 2015:24; p. 90). Nordic Institute for Studies in Innovation, Research and Education (NIFU).
- Department of Academic Affairs. (2019, June 17). Speak up! About educational quality and the learning environment. Retrieved November 28, 2019, from Speak up! About educational quality and the learning environment website: <https://www.nmbu.no/en/students/procedures/educational-quality-learning-environment/node/37624>
- Dyb, E. (2016, October 31). NMBU Learning Philosophy. Retrieved from NMBU Learning Philosophy website: <https://www.nmbu.no/en/employees/learning-center/nmbu-learning-philosophy>
- Earl, C. (2016). Doing Pedagogy Publicly: Asserting the Right to the City to Rethink the University. *Open Library of Humanities*, 2(2), 1–32. <https://doi.org/10.16995/olh.95>
- Evans, J., Jones, R., Karvonen, A., Millard, L., & Wendler, J. (2015). Living labs and co-production: University campuses as platforms for sustainability science. *Current Opinion in Environmental Sustainability*, 16, 1–6. <https://doi.org/10.1016/j.cosust.2015.06.005>
- Felten, P., Bovill, C., & Cook-Sather, A. (2014, June). *Engaging students as partners in learning and teaching (1): Benefits and challenges – what do we know?* Presented at the Educational Development in a Changing World, Stockholm, Sweden.
- Francis, C., Breland, T. A., Østergaard, E., Lieblein, G., & Morse, S. (2012). Phenomenon-Based Learning in Agroecology: A Prerequisite for Transdisciplinarity and Responsible Action. *Journal of Sustainable Agriculture*, 31(1), 60–75. <https://doi.org/10.1080/10440046.2012.717905>
- Francis, C., Lieblein, G., Breland, T. A., Østergaard, E., Morse, S., & Nicolaysen, A. M. (2014). *Bridging the Gap between Academia and Food System Stakeholders*. 10.
- Freire, P. (1993). *Pedagogy of the Oppressed*. New York: Continuum.
- Freire, P. (1998). *Pedagogy of Freedom*. New York: Rowman & Litterfield.
- Frølich, N. (2007). *Funding Systems and their Effects on Higher Education Systems* (OECD Education Working Papers No. 6). <https://doi.org/10.1787/220244801417>

- Giroux, H. A. (2010). Rethinking Education as the Practice of Freedom: Paulo Freire and the Promise of Critical Pedagogy. *Policy Futures in Education*, 8(6), 715–721. <https://doi.org/10.2304/pfie.2010.8.6.715>
- Giroux, H. A. (2013). *On critical pedagogy*. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=384821>
- Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 24(2), 105–112. <https://doi.org/10.1016/j.nedt.2003.10.001>
- Green, W. (2019). Engaging “Students as Partners” in Global Learning: Some Possibilities and Provocations. *Journal of Studies in International Education*, 23(1), 10–29. <https://doi.org/10.1177/1028315318814266>
- Hald, M. (Ed.). (2011). *Transcending boundaries: How CEMUS is changing how we teach, meet and learn*. Uppsala, Sweden: Centrum för miljö- och utvecklingsstudier i Uppsala (CEMUS): Centre for Sustainable Development, Uppsala University and SLU.
- Herranen, J., Vesterinen, V.-M., & Aksela, M. (2018). From Learner-Centered to Learner-Driven Sustainability Education. *Sustainability*, 10(7), 1–14. <https://doi.org/10.3390/su10072190>
- Higher Education Academy. (2014). Students as partners programme compendium 2012-13. Retrieved December 1, 2019, from <https://www.heacademy.ac.uk/download/students-partners-programme-compedium-2012-13>
- Holley, K. (2017). Interdisciplinary Curriculum and Learning in Higher Education. In K. Holley, *Oxford Research Encyclopedia of Education*. <https://doi.org/10.1093/acrefore/9780190264093.013.138>
- hooks, bell. (1994). *Teaching to transgress: Education as the practice of freedom*. New York: Routledge.
- Hsieh, H.-F., & Shannon, S. E. (2005). Three Approaches to Qualitative Content Analysis. *Qualitative Health Research*, 15(9), 1277–1288. <https://doi.org/10.1177/1049732305276687>
- Kalpaizidou-Schmidt, E. (2012). University funding reforms in the Nordic countries. In F. Maruyama & I. R. Dobson (Eds.), *Cycles of University Reform: Japan and Finland Compared* (pp. 31–56). Tokyo: Center for National University Finance and Management, Japan.
- Klemenčič, M. (2017). From Student Engagement to Student Agency: Conceptual Considerations of European Policies on Student-Centered Learning in Higher Education. *Higher Education Policy*, 30(1), 69–85. <https://doi.org/10.1057/s41307-016-0034-4>
- Klemenčič, M. (2019). *Successful Design of Student-Centered Learning and Instruction (SCLI) Ecosystems in the European Higher Education Area*. Presented at the XX Anniversary of the Bologna Process.
- Lea, S. J., Stephenson, D., & Troy, J. (2003). Higher Education Students’ Attitudes to Student-centred Learning: Beyond “educational bulimia”? *Studies in Higher Education*, 28(3), 321–334. <https://doi.org/10.1080/03075070309293>
- Leuven Communiqué’ (2009) The Bologna Process 2020 -The European Higher Education Area in the new decade’, Leuven, [http://ond.vlaanderen.be/hogeronderwijs/bologna/conference/documents/Leuven\\_Louva-in-la-Neuve\\_Communicu%C3%A9\\_April\\_2009.pdf](http://ond.vlaanderen.be/hogeronderwijs/bologna/conference/documents/Leuven_Louva-in-la-Neuve_Communicu%C3%A9_April_2009.pdf), accessed 8 December 2016.
- Levin, M. (2012). Academic integrity in action research. *Action Research*, 10(2), 133–149. <https://doi.org/10.1177/1476750312445034>
- Lieblein, G., Arvid Breland, T., Salomonsson, L., Sriskandarajah, N., & Francis, C. A. (2008). Educating Tomorrow’s Agents of Change for Sustainable Food Systems: Nordic Agroecology MSc Program. *Journal of Hunger & Environmental Nutrition*, 3(2–3), 309–327. <https://doi.org/10.1080/19320240802244355>

- Lieblein, G., Breland, T. A., Francis, C., & Østergaard, E. (2012). Agroecology Education: Action-oriented Learning and Research. *The Journal of Agricultural Education and Extension*, 18(1), 27–40. <https://doi.org/10.1080/1389224X.2012.638781>
- Lieblein, G., Østergaard, E., & Francis, C. (2004). Becoming an Agroecologist through Action Education. *International Journal of Agricultural Sustainability*, 2(3), 147–153. <https://doi.org/10.1080/14735903.2004.9684574>
- Lygo-Baker, S. (2019). Valuing Uncertainty. In S. Lygo-Baker, I. Kinchin, & N. E. Winstone (Eds.), *Engaging student voices in higher education: Diverse perspectives and expectations in partnership*.
- Lynch, S., & Kuntz, A. (2019). 'A critical autoethnography of a doctoral students' research journey: Learning to take risks in the academy'. *Curriculum Studies in Health and Physical Education*, 10(2), 156–171. <https://doi.org/10.1080/25742981.2019.1588762>
- Mann, A. (2019). *Voice and Participation in Global Food Politics*. Palgrave Macmillan UK.
- Matthews, K. E., Dwyer, A., Hine, L., & Turner, J. (2018). Conceptions of students as partners. *Higher Education*, 76(6), 957–971. <https://doi.org/10.1007/s10734-018-0257-y>
- McNiff, J. (2014). *Writing and Doing Action Research*. London: SAGE.
- Migliorini, P., & Lieblein, G. (2016). Facilitating Transformation and Competence Development in Sustainable Agriculture University Education: An Experiential and Action Oriented Approach. *Sustainability*, 8(12), 1243. <https://doi.org/10.3390/su8121243>
- Mulder, I., & Loorbach, D. (2016). *Rethinking Design: A critical perspective to embrace societal challenges*. 10.
- Neary, M. (2013). Student as Producer: Radicalising the Mainstream in Higher Education. In D. Owen & E. Dunne (Eds.), *Student Engagement Handbook: Practice in Higher Education* (1st ed., pp. 587–601). Retrieved from [http://web.b.ebscohost.com/ehost/ebookviewer/ebook/bmxlYmtfXzYwNTA5NV9fQU41?sid=c7e3074e-93dc-4a0d-ad34-fa94da11aee6@pdc-v-sessmgr04&vid=0&format=EB&lpid=lp\\_616&rid=0](http://web.b.ebscohost.com/ehost/ebookviewer/ebook/bmxlYmtfXzYwNTA5NV9fQU41?sid=c7e3074e-93dc-4a0d-ad34-fa94da11aee6@pdc-v-sessmgr04&vid=0&format=EB&lpid=lp_616&rid=0)
- Nerland, E. M., & Prøitz, T. S. (Series Ed.). (2018). *Pathways to quality in higher education. Case studies of educational practices in eight courses* (p. 225) [2018:3]. Nordic Institute for Studies in Innovation, Research and Education (NIFU).
- Newig, J., Schulz, D., Fischer, D., Hetze, K., Laws, N., Lüdecke, G., & Rieckmann, M. (2013). Communication Regarding Sustainability: Conceptual Perspectives and Exploration of Societal Subsystems. *Sustainability*, 5(7), 2976–2990. <https://doi.org/10.3390/su5072976>
- Nyström, M. (2011). Why a Translation? In M. Hald (Ed.), *Transcending boundaries: How CEMUS is changing how we teach, meet and learn*. Uppsala: Centrum för miljö- och utvecklingsstudier i Uppsala (CEMUS).
- O'Neill, G., & McMahon, T. (2005). Student-centred learning: What does it mean for students and lecturers? In G. O'Neill, S. Moore, & B. McMullin (Eds.), *Emerging Issues in the Practice of University Learning and Teaching* (p. 10). Dublin: AISHE.
- Owen, D., & Dunne, E. (Eds.). (2013). *Student Engagement Handbook: Practice in Higher Education* (1st ed.). Retrieved from [http://web.b.ebscohost.com/ehost/ebookviewer/ebook/bmxlYmtfXzYwNTA5NV9fQU41?sid=c7e3074e-93dc-4a0d-ad34-fa94da11aee6@pdc-v-sessmgr04&vid=0&format=EB&lpid=lp\\_616&rid=0](http://web.b.ebscohost.com/ehost/ebookviewer/ebook/bmxlYmtfXzYwNTA5NV9fQU41?sid=c7e3074e-93dc-4a0d-ad34-fa94da11aee6@pdc-v-sessmgr04&vid=0&format=EB&lpid=lp_616&rid=0)
- PAE302 Agroecology. (n.d.). PAE302 Agroecology: Action Learning in Farming and Food Systems. Retrieved June 12, 2019, from PAE302 Agroecology: Action Learning in Farming and Food Systems website: <https://www.nmbu.no/course/pae302>
- Park-Lee, S., Annala, M., & Kaskinen, T. (2015). An experimental program for Finland. In *Design for Government: Human-centric governance through experiments Design for Government* (pp. 6–21). Prime Minister's Office, Finland.



- Pintrich, P. R. (2003). A Motivational Science Perspective on the Role of Student Motivation in Learning and Teaching Contexts. *Journal of Educational Psychology*, 95(4), 667–686. <https://doi.org/10.1037/0022-0663.95.4.667>
- Richardson, L. (2000). New Writing Practices in Qualitative Research. *Sociology of Sport Journal*, 17, 5–20.
- Shephard, K., Brown, K., Connelly, S., Hall, M., Harraway, J., Martin, J., ... Stoddard, I. (2017). Empowering Students in Higher-Education to Teach and Learn. *New Zealand Journal of Educational Studies*, 52(1), 41–55. <https://doi.org/10.1007/s40841-016-0072-x>
- Sparre, H. (2019, September 18). NMBU Strategy 2019-2023.
- Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) (2015)  
Brussels, Belgium.
- Stensaker, B., Frølich, N., & Aamodt, P. O. (2018). Policy, Perceptions, and Practice: A Study of Educational Leadership and Their Balancing of Expectations and Interests at Micro-level. *Higher Education Policy*. <https://doi.org/10.1057/s41307-018-0115-7>
- Sterling, S. (2016). A Commentary on Education and Sustainable Development Goals. *Journal of Education for Sustainable Development*, 10(2), 208–213. <https://doi.org/10.1177/0973408216661886>
- Stoddard, I., Rieser, I., Andersson, S., & Friman, E. (2012). Igniting a Learning Revolution: Student-Run Higher Education for Sustainable Development. *The Solutions Journal*, 3(5), 34–39.
- Studieavdelingen. (2019, June 12). The Quality Assurance System for Education at NMBU. Retrieved November 2, 2019, from Kvalitetssystemet for utdanningen ved NMBU website: [https://www.nmbu.no/ansatt/adm/ksu/organisasjon\\_rammer/kvalitetssikringssystemet-nmbu](https://www.nmbu.no/ansatt/adm/ksu/organisasjon_rammer/kvalitetssikringssystemet-nmbu)
- The Collaboratory. (2018, November 28). The Collaboratory. Retrieved December 1, 2019, from About The Collaboratory website: <https://www.uib.no/en/collaboratory/119598/about>
- University Board of the Norwegian University of Life Sciences. (2017, January 19). *Academic regulations for NMBU*. Retrieved from <https://www.nmbu.no/en/students/studentparliament/documents/node/31115>
- Vesterinen, V.-M., Gollifer, S., & Macdonald, A. (2017). ActSHEN: Action for Sustainability in Higher Education. *LUMAT-B: International Journal on Math, Science and Technology Education*, 2(3), 3–11.
- Wright, G. B. (2011). Student-Centered Learning in Higher Education. *International Journal of Teaching and Learning in Higher Education*, 23(3), 92–97.
- Yin, R. K. (2018). *Case study research and applications: Design and methods* (Sixth edition). Los Angeles: SAGE.
- Zimmerman, B. J. (2000). Self-Efficacy: An Essential Motive to Learn. *Contemporary Educational Psychology*, 25(1), 82–91. <https://doi.org/10.1006/ceps.1999.1016>

# APPENDIX

## APPENDIX 1: Special Syllabus Agreement for "Design for Society"

### Course Contents

The Design for Society course offers innovative uses of design and facilitates 'change agent' roles for students to address complex challenges (also known as wicked problems) within society. 'Real world' project briefs are selected each year through a partnership with key community partners. During the course challenging project briefs are addressed using creative and analytical processes based on theory, methods and tools such as human centered action research and design, systems thinking, change management frameworks and holistic thinking. Multiple perspectives will be considered when analyzing the system related to the challenge including political, economic, environmental and social dimensions.

- Education and learning for the benefit of society
- A partnership between academic and non-academic sectors
- Community focused
- A focus on impact, beyond learning and thought
- Challenges to be defined through university and community consensus
- Interdisciplinary approach bringing together multiple departments and disciplines and providing a common approach to addressing community challenges

### Framework

This student-driven and student-facilitated special syllabus will be a combination of

- 1) student-organised seminars about theory, and
- 2) participatory action research into challenges developed with community stakeholders.

Weekly contact sessions will provide theory, context, tools and facilitation relevant to key areas and approaches. These sessions will combine a range of formats including interactive presentations, workshops, group discussions, individual and plenary reflections, and tutoring where guest lecturers will guide students in the application of the classroom content to the challenge briefs. The majority of the workload will be executed outside of contact hours, as self-directed team-work by the students.

Key stakeholders from the community and/or government will be matched with multidisciplinary student 'design' teams who will address the challenges.

The contact hours will be designed, moderated and facilitated by Course Coordinators.

Course Coordinators will be responsible of

- Delivering regular updates to the Course Responsible regarding the progress of students, teams and cases,
- Giving guidance and feedback to students and teams,

- Organising contact hours and making sure the content is delivered as planned in the schedule and
- Carrying out administrative duties

Assignment will be delivered through regular summaries, tutoring, and contact sessions. Interim and final presentations and the final report are to be delivered to project supervisors.

### **Learning Goals**

- Knowledge and skills on working interdisciplinary towards transdisciplinary solutions/decisions.
- Knowledge and skills on innovative uses of design and facilitation when dealing with wicked problems.

### **Learning Outcomes**

By the end of the course students should demonstrate:

1. A familiarity with a range of transdisciplinary discourses regarding change/ transition within complex systems. An understanding of design- and systems-thinking.
2. Familiarity with the range of large, 'wicked' problems confronting society in the 21st century (climate change, pollution, social disconnect, loss of biodiversity, etc.). The ability to identify their roots and map/visualize their interconnections and interdependencies. Understanding of how these wicked problems form the greater context for almost all design problems and solutions.
3. An understanding of the dynamics at work within living systems (emergent properties, self-organization, network dynamics, systems level relationships etc.) and how these 'systems dynamics' can be leveraged in designing for and within complex social and natural systems.
4. Familiarity with a range of approaches and tools. An understanding of the importance of thinking in long horizons of time in order to inform the design of short, mid and long-term solutions at multiple levels of scale.
5. Familiarity with approaches regarding working interdisciplinary.
6. Creative and relevant application of these knowledge areas and methods within a 'real world' project brief commissioned by community partners.
7. A critical understanding of their own role within the complex systems as 'agents of change'.

Learning outcomes adapted from the Transition Design Course at Carnegie Mellon University 2015.

### **Learning Activities**

- Lectures and seminars on theory, reflection and discussion sessions, led and moderated by students
- Lectures and seminars on theory by guest lecturers from NMBU
- Lectures and seminars and/or workshops on theory by non-academic guest lecturers
- Workshops within course participants
- Workshops with community stakeholders
- Blog posts as group assignments
- Other fieldwork with community stakeholders

- Stakeholder document due end of semester
- Public conference due end of semester
- Course readings and lecture notes in Canvas

### **Structure**

- The students will meet weekly to discuss assigned readings and/or other materials, and their case studies.
- Weekly meetings comprise of 3 hours of classroom time plus independent/group study hours.
- During each of the weekly class meetings, the DFS Course Coordinators will, on a rotational basis be in charge of moderating the session.
- The sessions will be based on assigned readings or other materials selected by students. Each session will be followed by reflections and plenary discussions.
- After each session, the PowerPoint slides and a summary of the plenary discussions will be uploaded on Canvas or Google Drive and distributed among all participants by the course facilitator.
- In addition, external lecturers will be invited to present selected topics.
- There will be field trips, workshops and stakeholder meetings for gathering data on cases.

### **Class Size**

Minimum 6, maximum 12 master's level students from different disciplines.

### **Course Responsible and Responsibilities**

Responsible Supervisor: Elin Børrud

- a. Overview the special syllabus agreement form, which includes the course description, syllabus and budget, and make sure they are in line with the requirements set by NMBU
- b. Sign and present the special syllabus agreement form to the education committee and get approval of head of UU
- c. Carry out assessments for grading
- d. Attend the final conference

### **Schedule/Syllabus**

[Click here](#)

### **Assignments**

Assignments are not graded but mandatory in order to pass the course. They will be announced during class.

- Blogposts:
  - Each group will write a blog post about a topic of interest relevant to the course teachings.
  - Responsibility for writing blog posts will rotate among teams.
  - A new blog post will be issued every two weeks.
  - A guideline for blog posts and a list of topics will be provided.

## **Deliverables and Assessment**

Deliverables form the basis of assessment of learning, on a pass/fail grading system.

- Contribution to class activities and group work (30%)
- Individual deliverables: Learning diary (content and process) due end of semester (30%)
- Group deliverables: Final report for the stakeholders and public event for presenting the final report (due end of semester) (40%)

Other requirements are:

- Participation (85% attendance required unless otherwise agreed in advance with coordinator)
- In addition, teachers will take into account feedback from project stakeholders on:
- Quality of project process and outcome
- Peer- and self-assessment.

## **Prerequisites**

Both Bachelor's and Master's level students

## **Nominal Workload**

The course is 10 ECTS. The course has a 270 hour nominal workload.

- Contact teaching (lectures, workshops, tutoring, presentations, etc.) 50h
- Group work (in contact teaching sessions and independent work and reflection) 150h
- Learning diaries (reflective logs) and work-in-progress reports (blogs) 10h
- Projects and final report 60h
- Contact teaching is scheduled on 1 day per week.

## **Notes**

Be prepared to work more if you are less familiar with human, systems, and intervention and design approaches. As this is an advanced studio course we assume that you are acquainted with the basics. Based on our experience with similar courses, students should avoid taking a significantly demanding course at the same time.

## APPENDIX 2: Chronology

The text below is retrieved from an email correspondence between Design for Society and Pådriv (Email correspondence, March 2018).

### *Timeline of Events, Autumn 2018*

- Early Sep, Approached Dean Eva Falleth, referred to Education Committee and student representatives
  - Received broad support for the Design for Society concept from
  - Education Committee (EC)
  - Student representatives
  - Set up Microsoft Teams structure for communication, storage and collaboration
  - Referred by EC to contact Elin Børrud,
- Oct 1<sup>st</sup> Initial meeting with Aasmund and Mike
  - Discussed special syllabus approach to initiate pilot for Spring 2019
- Oct 4<sup>th</sup> meeting with Elin Børrud:
  - Discussed alignment with SITRAP project
  - June or August block course suggested
  - We emphasised our interest in trialling pilot for Spring 2019
- Post meeting up with Elin:
- Oct 17<sup>th</sup> Engaged with Pådriv to determine potential cases
- Oct 10<sup>th</sup>, 29<sup>th</sup> Met with supportive academics for feedback on concept
  - Developed the case briefs, course description & draft syllabus
- October's EC meeting was cancelled, where we were due to present idea
- Nov 6<sup>th</sup> Met with Social Entrepreneur, Growlab
- Nov 11<sup>th</sup> Delivered case-briefs to Pådriv for feedback
- Nov 28<sup>th</sup> Received feedback on case briefs from Pådriv
- Early December, met up again with Elin to obtain feedback on syllabus, cases and course description
  - She was going to pull out until we re-assured her that we would take responsibility for organising delivery
  - Just wanted her signature on the learning agreement
  - She agreed to be course responsible
- Following agreement with Elin:
  - Dec 3<sup>rd</sup> delivered course budget estimate
  - Received insightful feedback from Elin
  - The financial resources available to the course were uncertain and were not settled until mid-January 2019
- Early December-Late January, Promoted the course through different channels,
  - Established Facebook page, to broadcast
  - Organised information meetings
  - Utilised posters around the campus to broaden our reach.

- Communicated with numerous students over social media and emails.
- All along
  - Readings from various authors to find the right methodology for the interdisciplinary nature of the course
  - Discussions among the groups and other initiatives to strengthen theory and predicted mode of delivery
  - Designed a syllabus, and created contents week by week.
  - Wrote a course description from scratch.
  - Conducted meetings with various initiatives in Norway & Denmark to learn from their experiences.”

## **APPENDIX 3: Written Materials by Design for Society**

### **Design For Society Course Proposal (October, 2018)**

*“Putting learners in the ‘driver’s seat of profound societal change”*

#### **Background:**

Society is not static, but dynamic and subject to disruption, with significant challenges across sectors at multiple levels. While many would agree these issues require interdisciplinary, ‘out of the box’ thinking and applied solutions, our organisational structures and pedagogy do not sufficiently address the cross-sectoral and dynamic nature of societal problems. Within the government and private sector as well as academia, we have been creating and perpetuating organisational silos that compete with each other, which often results in reductionist solutions leading to further problems.

If these organisational silos exist in academia, how can we expect government, business and the citizenry to be more collaborative? How can we shift the organisational structures within our communities and society, from competing silos to collaborative organisational eco-systems working together for societal renewal? We can start by bringing together the humanities, social sciences and STEM to bridge departmental silos in universities around interdisciplinary courses and projects. More tangibly, students could work on real-life problems with peers from other disciplines to develop solutions for society at large or their local community.

#### **Why this course:**

Students have tremendous potential to be part of renewing society, facilitating the shift to collaborative organisational eco-systems. In many cases theory needs to be bridged with practice, too often the focus being on practice or theory in isolation. Putting the learner in the “driver’s seat of profound societal change,” and moving the place of learning beyond the lecture hall to the real world, would be a great step toward bridging the gap between theory and practice. Bringing together students from different disciplines would also enrich their ability to see beyond their own field, to see the larger societal system, and their role in it. Issues suddenly become interconnected and collaboration across disciplines becomes easier.

Government actors and community stakeholders could utilize academia to develop solutions to problems, and students can conduct assignments that actually have an impact, rather than delivering a document that just sits on a shelf. Students want to be involved in solving real-life

problems as well as extracurricular activities, but are often too busy working and studying to have a higher engagement with the community and potential extracurricular projects. Additionally governments and other community groups are lacking the resources, creativity, knowledge and understanding to solve their problems. This course can bring academia and society together in an environment that fosters capable students and community impact focused research.

*“Cities and communities face serious challenges related to social equity, environmental sustainability, fiscal health, livability and more. While these are real challenges, lack of knowledge of how to address them is often not the barrier for moving forward, but putting knowledge into practice is. Local governments often lack the time, capacity, knowledge, and political space to do things in new ways. Universities, on the other hand, especially via existing curricula and classrooms, have an enormous amount of time, capacity, access to new knowledge, and an inherent ability to insert new ideas into the public discourse in politically safe ways” - EPIC Network*

### **Purpose:**

Key stakeholders from the community and/or government would be matched with **inter-disciplinary student ‘design’ teams** who would **solve real problems** under the guidance of key academics and community stakeholders. An interactive **action-research and learning course** such as this proposal, could be a key component in bridging the disciplinary silos at university and enrich students’ ability to see beyond their own field. It would also address the gap between theory and practice, by moving the place of learning beyond the lecture hall to the real world, and putting students in the ‘driver's seat’ of societal change.

### **Deliverables:**

Students would develop proposed solutions to a community problems that contains worked ideas for action, this would be delivered in the form of a **report** that is accessible both in presentation layout and language. The student teams could **deliver a presentation** of their findings, and ideas for action at an end of the course event where key stakeholders from community and/or government are present.

Where could the problems come from?

From different levels of government (local, county, national), community partners or relevant Norwegian organisations such as Padriv, Norwegian Institute of International Affairs, and OREEC etc. Projects could also be inspired from international organisations and applied to a local context such as IPES, and EU’s URBACT program. Projects with a more local focus could be obtained through partners such as Vitenparken, Mattilsynet, SmakÅs, Uka i Ås, Samfunnet etc. Potentially ideas could also originate from students or academics that are working with community stakeholders. All problems would be put through an iterative vetting process managed by key partners and the faculty, to ensure suitability for the course.

### **Desired background for incoming students?**

The course would not focus on acquisition of basic knowledge but on the application of knowledge to address community/government project briefs. Students would be expected to have a basic level of knowledge such as a change management frameworks, systems thinking, policy design (such as EDS348) and design for behavioural change Students should have good to excellent knowledge and experience of such areas from previous courses and/or **other equivalent experiences**. The following courses are recommended but not mandatory:



- [EDS348 Politics and Governance of the Environment](#)
- [APL360 Planning for sustainable urban regions](#)
- A new course something like Aalto's '[Values in Design](#)' which would be valuable for engineers and other more vocational disciplines such as Landscape Architects and Urban Planners

### **What change management frameworks would be suitable?**

[Theory U](#) from MIT's Sloan School of Management

[Design Thinking](#) or [Human centred design](#) from Stanford Design School.

### **Inspiration:**

Design for Society was inspired by '[Design for Government](#)' (DFG) at Aalto University in Finland. The course is part of a multi-disciplinary masters Program called, '[Creative Sustainability](#)' with majors in Architecture, Real Estate, Design and Business. The DFG course was **originally commissioned by the Finnish Prime-Minister's office**, utilising student teams to develop innovative and evidence based policy solutions for the Finnish government. This idea was inspired by innovative governance incubators such as [Helsinki Design Lab](#), the [Design Driven City](#) programme of Finland, [Policy Lab](#) under the UK Cabinet, [MindLab](#) of Denmark, [the Public Policy Lab](#) of New York and [DesignGov](#) in Australia.

Seeing how this more interactive relationship between the community and the university can happen in educational organisations can also be seen in the EPIC Network's University of Oregon [Sustainable City Year Program](#) (SCYP) Courses or Boston University's [Sustainable City Year Program](#) Projects. The New York Times was rather glowing in it's assessment of Oregon's SCYP program:

*"Perhaps the most comprehensive effort...to infuse sustainability into its curricula and community outreach..." - [The New York Times](#)*

### **Content:**

#### **Learning outcomes:**

Students would learn the skills to be able to solve complex problems, and should be able to:

- "Apply knowledge of the areas of ['Theory U']/'human-centered research and design,' systems thinking and behaviour insight in relation to policy-level design brief.
- Demonstrate creative and relevant application of these knowledge areas and methods within a 'real world' project brief commissioned by government... [or community partners].
- Describe the relevance of their project in terms of creative and analytic processes and in terms of some key literature, concepts, methods and tools from across the knowledge areas.
- Communicate verbally, visually and in writing to those from multiple disciplines, sectors and the public.
- Reflect critically on their own role within a multidisciplinary group and within the governmental context."

Learning outcomes adapted from the DFG course at Aalto University ([Aalto University, 2018](#)).

#### **Assessment**

Assessment would be performed continuously by course coordinators based on:

- Participation (85% attendance unless otherwise agreed in advance with coordinator)

- Contribution to group work and completion of assignments
- Learning diaries (logs) and work-in-progress reports (blogs)
- Presentations and final report
- In addition, teachers will take into account feedback from project stakeholders on:
  - Quality of project process and outcome

Assessment pieces adapted from the DFG course at Aalto University ([Aalto University, 2018](#)).

**Benefits:**

- Bridge the silos between different student disciplines, academics and departments at NMBU
- Bring NorAgric and former ILP departments together around a common course
- Applicable for students in other faculties that are interested in solving complex societal problems eg Economics, Engineering and other students/departments
- Develop partnerships with other Universities such as Aalto in Finland and those that are part of the EPIC Network in the United States

**Who could help set this program up (allies)**

- Receptive academics within NMBU at Noragric, BYREG, LA, FOHE, EIEJUS, Agroecology, REALTEK, MINA
- The Learning Centre at NMBU, especially with offering courses in change management framework, systems thinking etc

Both the [Presencing Institute \(Theory U\)](#) and the [EPIC Network](#) are able to provide assistance for new universities to incorporate the approach that is proposed with this course.

## Design for Society Course Overview, October 2018

Overview prepared by Abel Crawford (MSc Agroecology) and Tony Martel (MSc International Relations)

# Design for Society a brief overview

**Society** is not static, but dynamic and subject to disruption, with significant problems across sectors at multiple levels. While many would agree these issues require interdisciplinary, 'out of the box' thinking and applied solutions, our organisational structures and pedagogy do not sufficiently address the cross-sectoral and dynamic nature of societal problems. Within the government and private sector as well as academia, **we have been creating and perpetuating organisational silos** that compete with each other, which often results in reductionist solutions leading to further problems.

If these organisational silos exist in academia, how can we expect government, business and the citizenry to be more collaborative? How can we shift the organisational structures within our communities and society, from competing silos to collaborative organisational eco-systems working together for societal renewal? We can start by bringing together the humanities, social sciences and STEM to bridge departmental silos in universities around interdisciplinary courses and projects. More tangibly, students could work on real-life problems with peers from other disciplines to develop solutions for society at large or their local community.

### Purpose

Key stakeholders from the community and/or government would be matched with **inter-disciplinary student 'design' teams** who would **solve real problems** under the guidance of key academics and community stakeholders. An interactive **action-research and learning course** such as this proposal, could be a key component in bridging the disciplinary silos at university and enrich students' ability to see beyond their own field. It would also address the gap between theory and practice, by moving the place of learning beyond the lecture hall to the real world, and putting students in the 'driver's seat' of societal change.

### Deliverables

Findings and solutions would be delivered in the form of a **report** and **public presentation** at an end of the course event where key stakeholders are present. Deliverables must be accessible, both in terms of language and aesthetics.

### Inspiration

Design for Society was inspired by '[Design for Government](#)' (DFG) at Aalto University in Finland. The course is part of a multi-disciplinary masters Program called, '[Creative Sustainability](#)' with majors in Architecture, Real Estate, Design and Business. The DFG course was **originally commissioned by the Finnish Prime-Minister's office**, utilising student teams to develop innovative and evidence based policy solutions for the Finnish government. This idea was inspired by innovative governance incubators such as [Helsinki Design Lab](#), the [Design Driven City](#) programme of Finland, [Policy Lab](#) under the UK Cabinet, [MindLab](#) of Denmark, [the Public Policy Lab](#) of New York and [DesignGov](#) in Australia. You can watch an introduction of the final public presentation of the projects here [vimeo.com/album/4653766/video/223412301](https://vimeo.com/album/4653766/video/223412301) and a documentary about the course here [dfg-course.aalto.fi/2017/new-mini-documentary-about-design-for-government/](https://dfg-course.aalto.fi/2017/new-mini-documentary-about-design-for-government/)

### Desired background

The focus of this course is not on acquisition of basic knowledge but on the **application of knowledge**. Students would be expected to have a basic level of knowledge such as a change management framework, systems thinking, policy design (such as [FDS348](#)) and design for behavioural change.

### Where could the problems come from?

Problems can be solicited from different levels of government (local, county, national), community partners, or relevant Norwegian organisations such as [Pådriv](#) or [OREEC](#) etc as well as international organisations, such as [IPES](#) or [URBACT \(EU\)](#). Students and academics working with community stakeholders could also propose problems. All problems would be vetted through an iterative process to ensure suitability for the course.

*“ moving the place of learning beyond the lecture hall to the real world*

Figure A. Design for Society Course Discussion Brief

TUNTREET

# A CALL TO ACTION

BY THE DESIGN FOR SOCIETY COLLECTIVE

The world is in crisis. It is our view that NMBU needs to evolve, it needs to become a university that fosters a sense of urgency to fix the world, it needs to include sustainability transition as a central goal alongside research and teaching. We need to think beyond replicating physical and thinking silos in university and expecting society to be different. We need to equip students to be the change agents that will bring about the system change that the world so desperately needs.

**"We cannot solve problems with the same kind of thinking that created them." - Albert Einstein**

If these organisational silos exist in academia, how can we expect government, business and the citizenry to be more collaborative? How can we shift the organisational structures within our communities and society, from competing silos to collaborative organisational eco-systems working together for sustainability transition? We can start by bringing together the humanities, social sciences and STEM to bridge departmental silos in universities around interdisciplinary courses and projects. More tangibly, students could work on real-life problems with peers from other disciplines to develop solutions for society at large or their local community. Students have tremendous potential to be part of renewing society, facilitating the

shift to collaborative organisational eco-systems. In many cases theory needs to be bridged with practice, too often the focus is on practice or theory in isolation. Putting the learner in the "driver's seat of profound societal change," and moving the place of learning beyond the lecture hall to the real world, would be a great step toward bridging the gap between theory and practice. Bringing together students from different disciplines would also enrich their ability to see beyond their own field, to see the larger societal system, and their role in it. Issues suddenly become interconnected and collaboration across disciplines becomes easier.

University could partner with government actors and community stakeholders to develop solutions to societal problems.

**"If you want to truly understand something, try to change it." - Kurt Lewin**

Students could conduct assignments that involves a real case, actually have an impact, rather than delivering a document that just sits on a shelf. Many students want to be involved in solving real-life problems as well as extracurricular activities but are often too busy working and studying to have a higher engagement with the community and potential extracurricular projects.

Additionally, governments and other community groups are lacking the resources, creativity, knowledge and understanding to solve their problems.

We endeavour to see sustainability transition become one of the central missions at NMBU, while equipping students to initiate and drive system transformation. As a concrete step towards these aspirations, we have developed and are coordinating a pilot course this Spring 2019 parallel that is being called 'Design for Society' (DFS). Our intention is to facilitate multi-disciplinary student teams to address 'Wicked Problems' at NMBU and in Oslo. It is our hope that this is a step towards action, towards bringing academia and society together in an environment that equips students with the skills to facilitate societal transformation towards a sustainable future.



Figure B. Design for Society opinion piece in Tuntreet

# No More Buildings Underutilised

How can we put underutilised spaces to better use?

By: Idli Akdos and Tony Martel

## NMBU's Untapped Potential

Sprawling across a broad stretch of idyllic Ås, NMBU plays host to parks, pastures, ponds, and buildings. Whose domains are these spaces? Who should take ownership?

Think about your average day of classes at NMBU. At 10 AM, students are bustling from one lecture to another. The university seems to have a pulse, but then the clock strikes 16 and students are nowhere to be found. It is quite sad that we do not use the campus to engage in activities that nurture our non-academic identities: art, skills, interests, and merits that make us whole. There is amazing potential on NMBU's campus, and its assets can be repurposed to serve multiple functions.

## Are Our Buildings Underestimated?

We decided to show other students and ask them: how would you like your campus to be? In an event called Campus Discovery Walk, Design for Society invited students to observe, discuss and reimagine how underutilised spaces on campus can serve their wants and needs. If others had ideas to create an organisation, a club, a workshop or an activity space, participation would be the best tool to voice these ideas.

*"There is nothing to keep you on campus, once you get hungry, or tired, no kitchen, kettle or chill out spaces to catch a quick nap"*

## The Campus Discovery Walk

On the 6th of March a group of about 25 people gathered outside the Økonomi Building to explore the spaces on campus hidden in plain sight. We started by reviewing Tivoli, Økonomi, Animal Husbandry and Fruit Conservatory buildings. We walked in empty hallways, found dark corners and unused rooms. Convening in the Fruit Conservatory, we translated our inspirations into ideas. In small groups, we delved into the question "if you had a magic wand to create or change space on campus as you wanted, what would it be?"



Not surprisingly, others wanted to spend more time on campus, too. Emphasis was on facilitating a sense of *koselig*, and crafting liveliness and purpose to create meeting places. The benefit lies in bringing together students from different disciplines who would not otherwise cross paths to initiate dialogue. This cultivates awareness of the diverse resources within NMBU's network, in terms of people, skills and knowledge.

The students need to get involved in what campus looks like. Only in this way can we make an Ås where students are engaged and happy together!

*"When you go home from campus, you don't come back, you can't be bothered."*

## Campus Commons

During the workshop, several recurring ideas surrounded the themes of "workshopping spaces, for wood working, repair, brewing, art and crafts", "food commons, a café to have student community kitchens for cooking, homesteading, preserving food, baking", and "rest and play spaces, to meet, relax, play games, watch movies, where people can use the place to make snacks or drinks". The outcome of this workshop was a collective desire to create "campus commons" where students can interact outside of class. A space that is accessible

to everyone, also the town residents beyond campus. Benefits include cultivating a sense of belonging (goodbye loneliness and isolation), co-creating value and initiating dialogue (hello interdisciplinarity), and giving life to otherwise boring facilities that can foster the diversity of students on campus.

## A Call to Our Fellow Students

NMBU can give students a seat at the table for decision making when repurposing underutilised spaces to improve our collective well-being. This is a call to students to take ownership of their campus and make their voices heard. We can create vibrant, active and energizing spaces on campus that will address our wants and needs.

## What are your ideas? Let's hear them!

Design for Society has taken the initiative to get campus users involved in assessing the value of our campus and would like to ask you.

What do you want to see on campus? What would make this place more alive? After all, NMBU is Norway's university of life sciences. Let's make a campus for the commons that is alive with students, town residents, and faculty.

Figure C. Design for Society opinion piece in Tuntreet

## **Abstract to the 11th Annual Conference on Education Research (ACRE)**

\*One of the major events that we attended was a conference titled '11th Annual Conference on Education Research (ACRE)' which took place on the 16-17<sup>th</sup> of July 2019 at the Edgehill University in Liverpool, England. Design for Society submitted an abstract<sup>2</sup> and was invited to present at the plenary session on the first day of the conference. Tony Martel attended on behalf of the group and successfully delivered a presentation called "The Neoliberal University as a Wicked Problem": Reverse engineering academia's siloed approach toward transdisciplinarity through an experimental design thinking course".

### **The Neoliberal University as a Wicked Problem: Reverse engineering academia's siloed approach toward transdisciplinarity through an experimental design thinking course**

Life is a university. As such it is worth understanding the role of university in our lives. This paper examines and reflects on the complex role of the university in today's society, functioning as a structure of capitalism during a period of ecological crisis. This will be achieved by sharing the experiences of three master's students developing and coordinating a transdisciplinary systemic design thinking course at the Norwegian University of Life Sciences (NMBU). With universities corporatizing their organizational model, increasingly burdening professors with administrative responsibilities, and accelerating the rate of publication, there is little time to find common ground between academic departments, assess the impact of university research or nurture 'fire-souls'. Often students are an after-thought. Addressing these concerns, three students from NMBU constructed a systemic design thinking course called Design for Society, focusing on this conjunctural moment of political, economic, social and ecological crisis, in collaboration with community partners to plant a seed of transformation for the neoliberal model of higher education. Incorporating a critical pedagogical approach to this course, these three students eradicated the boundary between student and teachers, acting as course facilitators to rebel against the hierarchical status academics impose in a classroom setting of five students. Design for Society was about demonstrating that learning and research are highly compatible, while relevant projects contributing to sustainability transition problematizing the traditional distinction between research and education, offering intriguing possibilities for a synthesis between the classroom and research output. Moreover, the interdisciplinary student teams faced both opportunities and challenges in their approaches to the cases, but overall the intention of Design for Society was to put students in the driver's seat of systems transformation to drive sustainability transition by applying just-in time learning to real cases provided by community partners. Ultimately, Design for Society is an experiment where the course facilitators accumulated a wealth of tacit knowledge about how the university functions beyond the rhetoric of excellence and sustainability green washing.

---

<sup>2</sup> To read the abstract please see:

<http://eshare.edgehill.ac.uk/15094/5/ACRE%2019%20Bundled%20BoA%20Prog%20UPDATED%2011%20July.pdf>



## APPENDIX 4: Casework Descriptions

The below casework document was developed between Pådriv and Design for Society between October and December and then disseminated through a Google drive link. Information regarding these cases were disseminated through posters around the campus, social media posts in our Facebook page and two info meetings held in December and January by Design for Society to interested students as well as informal conversations, email correspondences and various classroom presentations. The text below is taken from the Google drive link.

### Context to cases:

Several specific cases to address challenges were developed between Pådriv and the Design for Society course working group for the Spring 2019 pilot course. Hovinbyen will be one of the main geographical locations for sourcing community problems and Pådriv is a key community partner to collaborate with. To develop innovative solutions to societal problems, Pådriv has launched the Beta.by program in Hovinbyen to develop and test those solutions. According to Pådriv's strategic document on Beta.by - 'Description of the Concept – Beta: City of Hovinbyen' the program will consider "solutions, processes and regulations that can be tested, demonstrated and developed" (pg. 16). It will have a special emphasis on address social sustainability, with particular focus on future of living, jobs and fellowship.

The strategic document also states that projects must be considered within the larger context, both spatially but also in terms of the higher-level strategic goals of Oslo, Norwegian and Global society.

---

*"the global challenges requires a conversion to a society where growth and development occur within nature tolerance limits. There must be a transition to products and services that provide significantly less negative consequences for climate and environment than today" (pg. 7)*

---

According to Pådriv's Beta.by document (translated from Norwegian using Google Translate), there is wide political consensus for a low emission society. In particular, Oslo seeks to be a leading and attractive business and knowledge-based city, with a focus on value creation and technology development - especially related to the green shift (pg. 6). The desire is for a smarter, greener, more inclusive and creative city for all residents, where citizens' interest and well-being is a central focus. Oslo shall be a viable model for other cities to follow.

The Beta.by program is well suited mechanism for students to learn and make an impact while developing real solutions to the issues in a local community. The projects will also consider the specific Beta.by goals (translated).

- Inform improved decision making regarding urban development
- Shift mindset and attitudes for the collaborative & sustainable development our cities
- Develop systems and regulations for increased sustainability and co-operation
- Create new jobs and develop new urban green-economy
- Increase the quality and speed of sustainable urban development
- Scaling of sustainable solutions

## Intended approach to addressing the cases:

The approach to address the cases would be to go through a research phase to understand the situation, establishing what the main issues are, co-creating both the frame of the problem and the desired future state with the key stakeholders and affected communities. Recommendations and an action plan to implement recommendations would be developed that would be relevant for both key stakeholders and the community. The challenges are listed below, with an appendices of the relevant SDG targets for each challenge at the end of the document

## Spatial context of cases

<https://drive.google.com/open?id=1YH5ldIii8NZOiafpwRkVmdbZA6DfDGIX&usp=sharing>

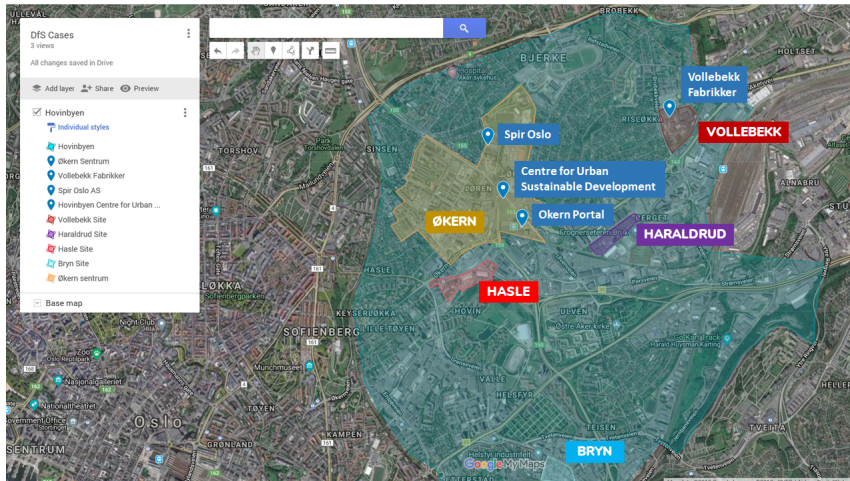


Figure D: A visual map designed by Design for Society to geographically locate the varying casework in the Hovinbyen area of Oslo.

Urbackt III sub>urban - Reinventing the Fringe Context Documentation

1. Strategy of Oslo for the transformation of the fringe in Hovinbyen
2. sub>urban Reinventing the fringe. Mid term conclusions
3. Book of Ideas on Oslo

## Case 1: Spir Oslo - Addressing the social and housing affordability disconnect through a social housing community hub



Figure E. The current site of Spir Oslo

**Key Themes:**



Affordable housing, shared living, governance, ownership, business, social sustainability, sustainable building design, community resilience, mental health, food, public spaces, participatory processes. Skill sharing, family living.

**Description:**

The current urbanisation approach poses several different challenges in today’s world: lack of affordable housing, increasing social disconnect, shrinking communal areas. Spir Oslo could be a social housing community hub that can explore the potential of co-living to tackle loneliness, promote interactions among different age groups while responding to the diverse needs of the elderly residents.

**Key stakeholders:**

Oslo Municipality, Spir Oslo

**Relevant disciplines:**

Development/Environmental Studies, Public Health, Business, Urban Planning, Landscape Architecture, Agroecology, Civil Engineering, Architecture, Real Estate, Philosophy, Economics, Sociology, Psychology, Arts

**Relevant SDGs**

1.4/ 3.d/ 3.5/ 6.4/ 7.1, 7.3/ 8.4/ 9.1/ 10.1, 10.2, 10.3, 10.4, 10.6/ 11.1, 11.2, 11.3, 11.4, 11.7, 11.A, 11.B/ 12.2, 12.3, 12.8, 12.B/ 15.1, 15.9, 15.A/ 16.6/

**Questions for student teams:**

1. How can we create shared spaces that facilitates genuine desire for interaction?
2. Can shared living ensure affordable and sustainable housing and tackle loneliness in the light of a diverse range of demographics?
3. What could be learned from other places around the world who have sought to address this disconnect or never had it in the first place?
4. How can we discover what people are willing to share?

**Case 2: Making Økern Portal a sustainable business and community hub**

<https://okernportal.no/>

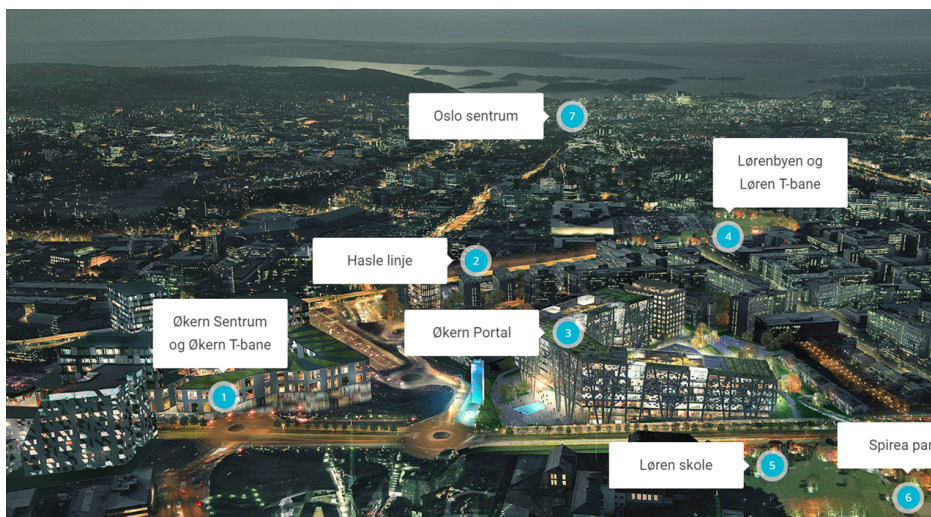


Figure F. Visualisation of Okern Sentrum, looking towards the city centre from the north east

**Key Themes:**

Governance, ownership, business, community resilience (well-being), start-ups, small business, public spaces, participatory processes, food systems, consumption, circular economy, Life-cycle analysis

**Description:**

A new business hub in Økern seeks to bring together economic and community activity as a 'sustainable community' in Hovinbyen. Økern Portal is central to the development of Økern and Hovinbyen, close to the new Økern Center, water park, cinema with a short distance to subway and public transport.

To what extent can Okern be a part of the green-shift, how can it be a significant piece of sustainable infrastructure, that embodies social and ecological sustainability, facilitating innovative business and commerce that addresses true needs of the population (improving wellbeing)? How can it raise awareness around consumption and environmental issues? Can this portal reconceptualize the conventional business hub model in innovative ways, fit into the urban context of Hovinbyen, while remaining attractive to people who are increasingly interested in green alternatives/solutions?

**Key stakeholders:**

Oslo Pension Insurance (Developer), Oslo Municipality

**Relevant disciplines:**

Development/Environmental Studies, Business, Economics, Urban Planning, Landscape Architecture, Agroecology, Civil Engineering, Architecture, Real Estate

**Relevant SDGs:**

1.4/ 6.4/ 7.1, 7.3/ 8.4, 8.10/ 9.1/ 10.1, 10.2, 10.3, 10.4, 10.5, 10.6/ 11.1, 11.2, 11.3, 11.4, 11.7, 11.A, 11.B/ 12.2, 12.3, 12.8, 12.B 15.1, 15.9, 15.A 16.6

**Questions for Padriv:**

What did you want the course and the student team to bring on this case?

**Questions for student teams:**

1. How can community resilience infrastructure be integrated into Økern?
2. What social innovation/experimental spaces can be integrated here?
3. What tools and methods are necessary for reconceptualizing such centers to fit into their urban context?
4. How can different business models (with different worldviews/values) co-exist?

**Case 3: Towards a social innovation program for Hovinbyen [Policy focused side of Case 4]**

Urbact Social Innovation Report and Recommendations

Social Innovation Community Europe - Declaration

<https://www.youtube.com/watch?v=IYyn6khryGk>

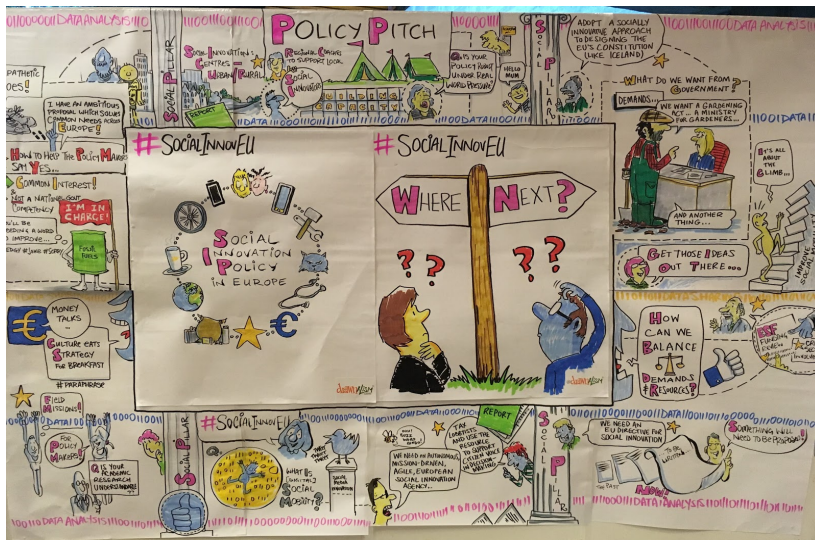


Figure G. Rich picture outputs from the Social Innovation Community Europe Final Event

### Key Themes:

Community finance, governance, ownership, social innovation, capacity building, community resilience (well-being), repurposing underutilized spaces, citizenship democracy, participatory processes, food systems, empowerment

### Description:

A participatory, democratic social platform that enables citizens to address societal challenges that they identify. This program would aim for citizens to understand their capacity for effecting change and co-create solutions that explore community needs.

This program can redefine social innovation as a form of citizen empowerment by taking a non-conventional approach to societal issues and solutions, which could bring together new actors and make seemingly disparate connections across sectors. Social innovation can reach its full potential when the focus shifts from short-term project participation toward building long-term capacity through ongoing relationships between citizens, business and government.

### Key Stakeholders:

Pådriv, Bydel Bjerke, Beta.by Participants, DOGA, ??

### Relevant disciplines:

Ecological Economics, Development/Environmental Studies, Public Health, Business, Urban Planning, Landscape Architecture, Agroecology, Civil Engineering, Architecture, Real Estate, Philosophy

### Relevant SDGs

16.5/ 17.13, 17.14, 17.17, 17.19

### Questions for Padriv:

What is Padriv's approach to Social Innovation Programs?

### Questions for student teams:

1. How can social innovation organize around regions/neighbourhoods?
2. What services and products can social innovators bring to Bjerke?
3. What is necessary to unlock the full potential of the disparate groups?
4. How can physical and virtual infrastructure incubate and disseminate ideas? What policy is needed to make this a reality and how can this be implemented?
5. What policy is needed to make this a reality and how can this be implemented?

## **Case 4: Activating social innovation through a co-creative space at Centre for urban sustainable development [Trial Case 3 in physical space, space focused].**

Urbact Social Innovation Report and Recommendations

Social Innovation Community Europe - Declaration

<https://www.youtube.com/watch?v=IYyn6khryGk>



*Figure H. Dome of visions community space in Aarhus, Denmark*

### **Key Themes**

Community finance, governance, ownership, social innovation, capacity building, community resilience (well-being), repurposing underutilized spaces, citizenship democracy, participatory processes, food systems, empowerment

### **Description:**

A social innovation program would couple well with the Centre for Urban Sustainable Development as a physical co-creative space to address sustainable urban development issues. A physical space that can influence purposeful human interaction can play a big role in creating innovative solutions, both social and societal. As the project of Hovinbyen matures, the social innovation hub can inform the process and propose resolutions to issues in real time through this platform.

This experimental space could play host to other forms of co-creation, for example a makerspace or educational workshops. This project would research the areas surrounding Hovinbyen to understand how these communities function, and how they might use this space.

### **Relevant disciplines:**

Development/Environmental Studies, Business, Urban Planning, Landscape Architecture, Civil Engineering, Architecture, Real Estate

### **Relevant SDGs**

3.5, 3.d/ 9.1, 9.3, 9.c/ 10.1, 10.2, 10.3, 11.4/

### **Questions for student teams:**

1. What conditions would be needed for facilitating social innovation, in particular the setup/design of the physical space?
2. How could it be an experimental pilot project that informs other social-innovation co-creative physical spaces around Hovinbyen?
3. What other functions would be needed to facilitate self-reinforcing synergies?

## **Case 5: Identifying and mapping opportunities & needs for Hovinbyen green shift industry**

Circular Economies Glasgow Report

## Circular European Economy Innovative Training Network

### Metabolic (Publications on Circular Economy)

#### **Key Themes:**

Self-sufficiency, Competitive Advantage, Circular Economy, Industrial Ecology, Energy, Mobility, Food, Wastewater, Water, Resources management, Employment

#### **Description:**

This case will involve identifying and mapping the opportunities that a green-shift and circular (bio)economy focused urban industry could cater to. It would also consider the governance changes and infrastructure [needs] that will help facilitate the growth of an urban industry that will drive the green shift. New job opportunities can emerge from the re-establishment of local and circular (bio)economies.

#### **Key Stakeholders:**

Siva (State Enterprise for Property Development/Policy Implementation)  
Renovasjonsetaten (Sanitation Department)  
Norwegian Environmental Agency

#### **Relevant Disciplines:**

Economics, Business, Engineering, Ecology, Urban and Regional Planning, Natural Resource Management, Agroecology, Development/Environmental Studies

#### **Relevant SDGs:**

1.4/  
6.3, 6.4/  
7.1, 7.3/  
8.4, 8.10/  
9.1, 9.2, 9.4, 9.5, 9.B/  
10.1, 10.2, 10.3, 10.4, 10.5, 10.6/  
11.1, 11.2, 11.3, 11.4, 11.7, 11.A, 11.B/  
12.2, 12.3, 12.8, 12.B  
15.1, 15.9, 15.A  
16.6

#### **Considerations for student teams:**

1. Which sectors have a potential for circularity? Identify and map out the current state
2. Consider what national and local needs could be met by local circular economies in Hovinbyen?
  - a. What are the needs of Hovinbyen, Oslo, surrounding regions?
  - b. What are the needs of Norway at large?
  - c. Can this case be translatable to larger contexts?
  - d. Is there an economic and political will for a circular economy?
3. What products could be competitively produced locally to address those needs?
4. What products can Norway produce domestically for the export market?

## **Case 6: NMBU practicing what it preaches, ecological/social sustainability of campus organisation**

Cortese, 2003, 'Critical Role of Higher Education in Creating a Sustainable Future'

#### **Key themes:**

Social and ecological sustainability, ecology, Student democracy, participatory processes, building design, waste management, governance, ownership, social innovation, social resilience (wellbeing), cocreation spaces, food systems, housing

**Description:**

"What if higher education were to take a leadership role, as it did in the space race and the war on cancer, in preparing students and providing the information and knowledge to achieve a just and sustainable society? What would higher education look like? The education of all professionals would reflect a new approach to learning and practice.

Imagine if NMBU would operate as a fully integrated community that models social and ecological sustainability itself and in its interdependence with the local, regional, and global communities. Where teaching, research, operations and connection to community are understood as interdependent sub-systems as part of an integrated system. Education could emphasize active, experiential, inquiry-based learning and real-world problem solving on the Ås campus and in the larger community.

**Key stakeholders:**

- NMBU Building Department/Central Administration/Procurement
- SiÅs
- As municipality
- Academic Departments/Faculties
- Student Societies

**Case 7 - Addressing social sustainability in Ås**

**Key Themes:**

Social and ecological sustainability, urban ecology, resilience, socio-ecological resilience, participatory processes, governance, ownership, social innovation, community wellbeing, cocreation spaces, food systems, housing

**Description:**

The town of Ås is located 35km south of Oslo in the Follo region and a part of the Akershus county. Ås was historically a farming town and evidence of this still exists its landscape. While farming is still active in Ås, the largest employer in the town is Campus Ås of the Norwegian University of Life Sciences (NMBU).

The town has experienced rapid growth in recent years. Growth is projected to continue, with the current population of 20 176 projected to grow by 69%, reaching 30 029 in 2040 (NSB, 2018). This makes Ås the highest growth, as measured by percentage growth, municipality in all of Norway. This growth is driven by an expansion of the University campus and the construction of a new railway line that will increase the frequency, and decrease the commute time, to Oslo. The ease of accessibility to Oslo makes it an ideal commuter town for residents who may work in Oslo.

With the rapid expansion on Ås, the municipality has been prioritizing housing and infrastructure (Informant 1, 2018) (Ås Kommune, 2016a), often called the "hard" or "physical" parts of social sustainability and falls under the social equity part of social sustainability (Cuthill, 2010; Dempsey, Bramley, Power, & Brown, 2011). Meanwhile, the sustainability of the community has been lacking. Eva Falleth, of the Department of Landscape Planning at NMBU, noted that Ås possess the characteristics of a commuter town, but has great opportunity to developed as a living place for quality and identity with its growth. However, instead, Ås has followed the characteristics of a commuter town, with a lack of vision for a living centre by the municipality and its various fragmented residents with distinct needs (Falleth, 2011).

In fact, the lack of a living centre was the inspiration to tackle the challenges of building community and social sustainability for this case study. As students and residents of Ås, we want to focus on

sustainability issues that are hyper local, and what is more local than our own backyard? We see a beautiful landscape filled with a rich agricultural heritage, a historical campus filled with bright, eager minds, and an influx of new residents. But looking around us, we sensed a lack of identity for Ås. A dynamic and vibrant centre is missing, as are social spaces and programming to build community and pride. We want to see planning policies that are private developer driven. Thus, this case seeks to look at ways in which Ås can build social sustainability, in particular the policies, programs and infrastructure that can build the sustainability of the community.

For this case, we have taken the perspective of the Social Meeting Place Coordinator at the Kommune, a new three-year 100% term position in the Ås Kommune.

**Key stakeholders:**

- As municipality
- NMBU NMBU Building Department/Central Administration/Procurement
- SiÅs

**Relevant Disciplines:**

Development/Environmental Studies, Public Health, Business, Urban Planning, Landscape Architecture, Agroecology, Civil Engineering, Architecture, Real Estate, Philosophy



## **APPENDIX 5: Course Coordinator Role Description (Detailed)**

This role was a prototype in the sense Design for Society was a prototype. Hence, the role description in the official paper (please see the Special Syllabus Agreement) had the depth of what we could have anticipated a few months prior to its execution.

**Administrative and Coordination** is the duty that was most visible to the student participants and teaching staff involved. The course comprised of 18 sessions, which required planning, organizing, preparing and implementing. Most of the sessions saw external partners or internal professors lecturing and giving workshops, however the remaining sessions required Course Coordinators to teach. All sessions required Course Coordinators to facilitate for reflection and connect to the overall project. All duties pertaining to weekly sessions were handled by the CF. Additionally, official duties such as student recruitment, keeping budget were handled by the CF.

**Liaising (Relationship building)** has been highlighted by the Course Facilitator as the most important and intense task. The significance of the task is related to responding to the different needs of different actors, since they have different reasons to become involved in Design for Society. Hence, the role focused on creating connections between students from different disciplines, across faculties within the university, and between the university and community partners, since one of the most pressing issues was finding the right people who would want to work this way. A Course Coordinator that works for a different project describes this responsibility as being linked to a high level of people-skills, because relationship depends on shaping the culture leading up to a partnership.

**Strategic management** - Connecting the dots. Metaperson. Overseeing the entire project. keeping the intentions of the work at the top of mind. Keep the course accountable to the stakeholders involved and see the next moves and figuring out how we can run this again.

**Syllabus development** has been described as the most stressful task by the Course Coordinators. This work is also the most criticized among all.



## APPENDIX 6: Syllabus and Schedule of Design for Society

Table A. Weekly Sessions and Contents

WEEK	DATE	SESSION	SUMMARY OF TOPICS
1	6-Feb	Introduction	S1-1 Course overview, why DfS, presentation of cases [1hr] S1-2 Design Bootcamp & Design approach to societal/wicked problems [3hrs] S1-3 Reflection, formation of teams, next steps
2	13-Feb	Stakeholder Workshop, Research Process	S2-1 Wicked problems, design thinking process [0.5 hrs] First two steps: Understand and Observe (Stakeholder Management) ---Workshop/meeting w stakeholders--- [1.5hrs] S2-2 Reflection and Team Research Plan development [1hr Group-work]
3	19-Feb	Understanding complex systems & data	S3-1 Understanding complexity, what is a system? Systems thinking, making sense of data (reflection) [1hr + discussion] S3-2 Systems mapping workshop and exercises [2hrs]
4	26-Feb	Research Methods	S5-1 How to apply which research method S5-2 Stakeholder mapping workshop S5-3 Microsoft Teams tutorial
5	5-Mar	Fieldwork	
6	12-Mar	Systems maps	S6-1 Group Presentations and Feedback Session S6-2 Social Sustainability and Resilience [1hr LEC + Discussion]
7	19-Mar	Narratives, storytelling, communication	S7-1 Communication for Sustainability [1hr public seminar + Discussion] S7-2 Mind mapping [why-how-what] S7-3 Feedback & Independent groupwork
8	26-Mar	Mid-Semester Review	S8-1 Preparation [30min] S8-2 Mid-semester Stakeholder Presentation and Review [Presentations + Q&A 90min] S8-3 Feedback (Independent group work - 45min)
9	2-Apr	SOD	S9-1 Systems Oriented Design – Gigamapping workshop
10	9-Apr	Goals and visions	S10-1 Ideal goals >> Pragmatic priorities >> Practical proposals S10-2 Sustainability Value Map
11	16-Apr	Easter Holidays	
12	23-Apr	Human behaviour and approaches to influencing	S11-1 Human behaviour/actions & approaches to influencing [2 hr Lecture + Discussions]
13	30-Apr	Fieldwork	
14	6-May	Visual communication	S13-1 Digital Story Seminar [1hr Tutorial] S13-2 Workshop in mini groups [1hr group discussion]
15	12-May	Independent Group Work	
16	18-May	Prep-up	S15-1 Rehearsal for public presentation [2hrs Presentations] S15-2 Reflection [1hr Independent group-work] S15-3 Group feedback with Tutors [1hr]
17	28-May	Final Event	Interactive Panel
18	31-May	Final Deliverables	Stakeholder report and Digital stories due this day

## APPENDIX 7: Weekly Sessions

Table B. Weekly Sessions and lecturers/facilitators

Wk	Activity	Lecturer	Organisation	Partnership
1	Bootcamp: Design Thinking	Mads Pålrud	Growlab	Community Partner
2	Workshop: Stakeholder Management and Reflection	Sandra Sketting	Pådriv	Private Sector Partner
		DfS Course Coordinators	NMBU	Course Coordinators
3	Workshop: Systems Thinking	DfS Course Coordinators	NMBU	Course Coordinators
4	Lecture: Social Research Methods	Prof. Roberta Cucca	NMBU / Dept. Urban and Regional Planning	Internal Academic Support
	Exercise: Systems Maps	DfS Course Coordinators	NMBU	Course Coordinators
	Tutorial: Microsoft Teams	DfS Course Coordinators	NMBU	Course Coordinators
5	Fieldwork			
6	Seminar: Social Sustainability and Resilience	Prof. Roberta Cucca	NMBU / Dept. Urban and Regional Planning	Internal Academic Support
7	Seminar: Communication for Sustainability,	Ingvild Warner	Leidar Norway	Private Sector
	Activity: Mind-mapping	DfS Course Coordinators	NMBU	Course Coordinators
8	Mid-Semester Review			
9	Workshop: Giga-mapping	Prof. Birger Sevaldson	AHO / Dept. Design	External Academic Support
10	Lecture: From visioning to action	Prof. Chris Butters	University of Oslo / SUM	External Academic Support
11	Easter Break			
12	Lecture: Human behaviour and approaches to influencing	Prof. Arild Vatn	NMBU / NORAGRIC	Internal Academic Support
13	Fieldwork			
14	Tool: Digital Story	Karen Winther	NMBU / Learning Center	Internal Academic Support
15	Independent Group Work			
16	Feedback	DfS Course Coordinators	NMBU	Course Coordinators
17	Final Event	All students	NMBU	All students

## APPENDIX 8: Events and Activities of Design for Society

Table C. Design for Society activities

Activity Name	Description	Date
Info Meeting December	Information Meeting	05.12.2018
Info Meeting January	Information Meeting	16.01.2019
Design for Society – Our Story	Article at ISU (International Students Union)-Norway	22.01.2019
Bootcamp	Course Kick-off	06.02.2019
Anthropocene: The Human Epoch	Movie Screening	03.03.2019
Campus Walk	Campus Discovery Walk, Workshop and Discussion	06.03.2019
Social Resilience	Seminar	12.03.2019
Global Strike for Future	Activism	15.03.2019
Communication for Sustainability	Seminar	19.03.2019
TuesdayRefill: Everyday Rebellion	Movie Screening	19.03.2019
Giga-Mapping	Workshop	02.04.2019
Vitenparken BioArt	Presentation	02.04.2019
A Call to Action	Tuntreet Opinion Piece	April 2019
ISU Event: 'Voices of Our Time'	Panelist	12.04.2019
No More Buildings Underutilized	Tuntreet Opinion Piece	May 2019
Breaking Down the Silos	Interactive Panel Final Event	28.05.2019
Guest at Insight Out podcast	Podcast	29.05.2019
ACRE19	Presentation at the Plenary	16.07.2019
TuesdayReFill: Ås-talks	Student Societies Meeting and Pitching	10.09.2019



Figure I. Poster of the first information meeting



Figure J. Poster of the second information meeting, the poster features one of the caseworks



Figure K. Public event and workshop

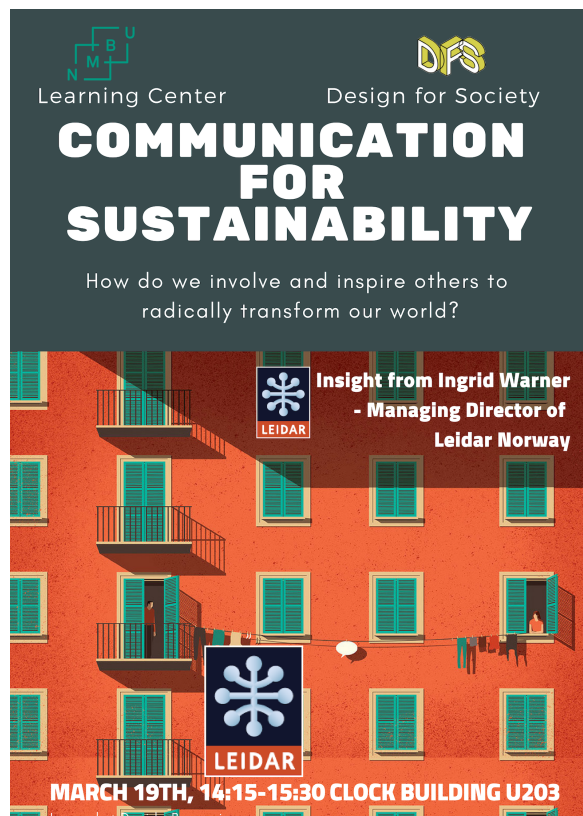


Figure L. Public Classroom Session

## APPENDIX 9: Design Thinking Framework

Design thinking aspires to formulate processes that can enable sustainability transitions in a simple form: inquire, ideate, implement and at each stage evaluate. This type of thinking frames current global challenges as collective societal challenges and approaches these challenges through “processes of societal experimentation, iteration, prototyping, and scaling guided by inspiring visions and future images” (Mulder & Loorbach, 2016, p. 16). Figure below explains how this process is overseen.

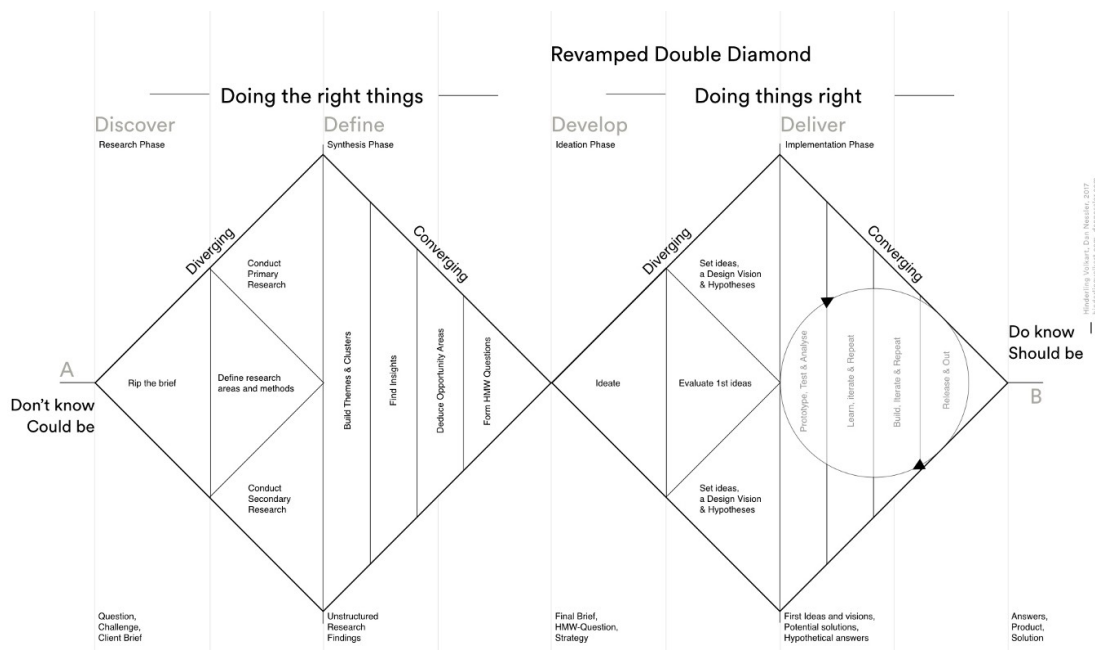


Figure M. Double Diamond from Design Thinking methodology

### WHAT IS DESIGN?

Many associate design with designing a product, or a visually pleasing medium. However, permeating all corners of our lives, design should be understood more broadly because it involves the end users in the thinking. And users have feelings, motivations, values and needs. Design, as will be elaborated below, is a concept beyond product and services. It can be understood as defining problems holistically and using empathy, then creating solutions to those problems, in a process of envisioning and plan of actions. The good thing about having an established process is that it is there to guide you when you feel confused or lost, and organise your work to produce solutions. It is also tightly associated with a culture of prototyping, storytelling, radical collaboration, values and motivations, a commitment to process awareness. That is why we chose Design Thinking as our framework and guiding methodology.

Similarly, creating an effective learning environment is an art, because the environment should be reflective and intentional and purposeful. Students develops co-agency in an interactive, mutually supportive and enriching relationship with their peers, teachers, parents and communities in an organic way in a larger learning eco-system. This is what we experienced in our classroom experience.

## **APPENDIX 10: Blog Post Guideline**

### **Design for Society – Blog Posts: A General Guideline**

Every two weeks one of the two groups will be responsible for producing and posting a series of blog posts.

#### **What Blog Posts Can Do**

A blog post is an opportunity to give your opinion to a wide audience in real time, rather than presenting a long-form argument.

We use the blog posts because of their versatility and conversational format compared to other forms of academic writing. The purpose of this assignment is to make use of the versatility and informality of the blog format through your own unique perspective as DfS students. You are open to experimentation, so we encourage you to be creative and daring while working as a group on your piece. We also encourage you to reflect on the topics being discussed in the classroom and some of the theories and methodologies that are novel within this university (please see list below). We think writing pieces tend to be impactful when they are charged with a poignant point of view, or an emotion that drives the point of view. Your wicked problem can be a point of departure for your piece.

Length for each Blog Post: Aim for at least 500 words.

Your outcomes for this course will consist of a stakeholder document, a digital story/learner document, and a public presentation. These deliverables are enough to demonstrate your learning to a wider audience, but it is also important to think about the “so what” factor. How do you demonstrate your learning to a wider audience beyond the university? The blog is your opportunity to communicate your reflections to the general public.

#### **Elements of A Blog Post**

- Content – focusing on breadth or depth
- Originality – going beyond the assigned readings
- Empirical evidence – relating all claims to evidence
- Pictures – blog posts should include original images or images with credits
- Additional details about the title, format, length, and audience are also included.

#### **Structure**

**Students are encouraged to develop their own structure for their post. However, the following are required to receive a passing mark:**

1. A question that you had from the lectures, reading or your case and an effort to provide an answer.
2. Attention to key concepts and an effort to define them based on their use in the text.
3. An effort to apply the concepts/ideas from the theory to contemporary social life.
4. A question for the blog-reader – something that you are left thinking about and want to know how your classmates think/feel.

#### **Possible Topics for Blog:**

- Action Learning
- Systems Thinking, Systems Maps
- Wicked Problems – problem definition and problem solution
- Design Approach to Wicked Problems
- Social Sustainability
- Resilience
- Sustainability, SDGs
- Sustainable Urban Development in Compact Cities
- Education at the University
- Sustainability Transition

- Working in Multi-Disciplinary Teams
- Building Community
- Circular Economy
- Interviewing
- Participant Observation

*\*Anything of interest that relates to the course*







**Norges miljø- og biovitenskapelige universitet**  
Noregs miljø- og biovitenskapelige universitet  
Norwegian University of Life Sciences

Postboks 5003  
NO-1432 Ås  
Norway